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THE SPIRIT AND SOCIAL SIGNIFICANCE OF SCIENTIFIC MANAGEMENT

In discussing the spirit underlying such a movement as scientific management, there is a danger of getting off into the realms of the unpractical, and of looking so far ahead as to take away from the present-day value of what may be said. That danger has been kept fully in mind in the preparation of this paper; and, therefore, although at times the statements which are here made may seem a little utopian or visionary, it may be asserted that there are establishments in this country today operating under conditions which approximate those described.

Scientific management has nothing to sell. Scientific management is not something which can be bought in a box. It is not something in the nature of a drug that one takes, and feels better. It is not a card index. It is dependent upon no single mechanism. Nor is it a combination of any number of mechanisms. It is not a system of keeping costs, as our friends in the printing industry sometimes think. Nor is it a method of paying wages, as members of the engineering profession have sometimes held.

We wish to try to remove honest doubts. Those of us who know something of the movement feel a call to add constantly to the number of the recruits who believe in the economic soundness of scientific management and in its ultimate and general adoption. But we do not feel that it is necessary that everybody who hears

about it should become a convert to it. There are undoubtedly a great many men and concerns the world over who are better off without scientific management. Therefore our function must be to point out what are its principles and why we believe they must necessarily be effective in increasing production.

In order to have no misunderstanding, let us admit at the start that there is relatively little scientific management anywhere. Even if from 50,000 to 100,000 men are working under its principles, almost 100 per cent of the workers and managers of this country must still be without what is technically known as scientific management. Dean Gay, the head of the Graduate School of Business Administration at Harvard, said several years ago that he estimated it would require two generations for the principles to become at all generally accepted or the methods to be in vogue in any large part of the industrial field. How could it be otherwise? Work has been going on continuously in the metal-working trades for over thirty years, yet there are today relatively few machine-shops organized in such a way as to measure up to the established standards. We have been working for nearly a decade in the printing industry, yet those who know most about what has been accomplished in this field also recognize most distinctly how much farther we shall have to travel before the industry will be affected in any large way. Even if the application of the principles of scientific management is all worked out for a given type of undertaking it is no easy task to introduce these methods into another and similar establishment. As our industries are organized today, not one establishment in ten can have scientific management because not one in ten is willing to live by law. The fact that it is something difficult to attain must be admitted, but that is, of course, no argument against it, because nothing worth having in life comes except by struggle.

This movement fortunately has long since been put on an international basis. Mr. Taylor's works have been translated into French, German, Italian, Dutch, Russian, Lettish, Spanish, and Japanese. There are some establishments in most of these countries in which real progress in scientific management is being made. Better still in most foreign countries one or more prominent citi-

zens—usually of the engineering profession—are advocating the adoption of scientific management as a means toward national progress.

Up to about two years ago there was practically no interest in scientific management. Even in Philadelphia—the home of Frederick W. Taylor, who first formulated and published the fundamental principles on which this science is founded—it was only within strictly technical circles and among his own friends that anything was known of this man, his work, and the great movement he had originated; one which, in the opinion of many of those most competent to judge, will ultimately affect the lives of all men and women. Up to two years ago I do not remember to have seen more than one reference to scientific management in the daily press. It seemed practically impossible to get a hearing for scientific management, except from isolated individuals, who were forced to it on account of the necessities of some particular business or industry in which they happened to be interested.

Since the rate hearing before the Interstate Commerce Commission in Washington, two years ago last November, all this is changed. Mr. Brandeis, in quoting from Mr. Emerson's book on *Efficiency*, the assertion that under scientific management the railroads could save $1,000,000 a day, seemed to afford the average man something definite upon which to speculate. This discussion had doubtless been imminent for some time, and if it had not been precipitated in connection with the work of the railroads, it would have been brought on, sooner or later, in connection with the work of government or some other line of human endeavor. To my mind, it is simply another indication of the passing of what may be called the "craft spirit" in human affairs, and the rise of the scientific spirit, with its broader outlook and its more substantial footing. In the old days of handwork, most of the improvement in the product was directly attributable to progress made by individual workmen. So also in the industrial régime, which some of us think is passing, the improvement in the product is due very largely to progress made within the individual industry.

What I have called the "craft spirit" has sought to accentuate the differences between the chemistry of railroading and the

chemistry of bookmaking, for instance. The scientific spirit, while not ignoring the essential differences in the application of a science to different industries, lays its greatest stress on the essential similarities. A railroad machine-shop, a machine-shop in a navy yard, and a machine-shop connected with an industrial establishment, are all viewed by their owners as radically different rather than as essentially similar: simply because the owners are laying stress on the elements in which their shops *are* different. As a matter of fact, an analysis of the factors which go to make up such establishments will show that they are exact counterparts of one another, over, let us say, 95 per cent of their field. This percentage might easily be higher, and it is rarely lower. Therefore, in the future, I take it, the individual industry will look beyond its own borders for help. Scientific management asks of the paper-maker, the college professor, the government official, and the ironmaster that each drop his craft spirit and take on as much as he can of the scientific spirit. Scientific management asks the same of the railroads. All the railroads' problems cannot be solved by railroad men; at least many of them can be solved better by men not solely engaged on railroad work, or men whose training has been obtained, in part at least, in other than railroad work.

In our colleges we teach our engineering students about the strength of materials, the mechanics of materials, and the economy of materials; but we are only beginning to teach them something as to the strength of men, the mechanics of men, the spirit of men; in a word, the economy of men. It is just beginning to dawn on us that there is a philosophy and an art and a science of human labor, with laws as definite as those of any other science. To this science we have given the name "management," and to distinguish it from something else, which in the industrial world has been called management, we call it "scientific management." That this conception is novel may be inferred from the fact that in the German language there are no equivalents even for "management" and "efficiency," and when it came to translating Mr. Taylor's last book into German the translator was forced to use the English words for "scientific management."

What are the ends to be obtained by management? In answer-

ing this question Mr. Taylor has pointed out in convincing fashion the futility of considering dividends as in any way a gauge, or even as the direct object of management. He gives two supreme ends toward which everything that is good in management must tend: (1) high wages coupled with low labor cost, and (2) maximum prosperity for all. These are the agencies through which our productive power will grow and ultimately reach its maximum. And it is only through heightened production that the dream of the race will be realized.

Fortunately for us, political economy reflects the best opinion of the modern world when it includes among the legitimate objects of production such items as the "benefits one derives from living in a certain place at a certain time; civil and military security; access to places of amusement and instruction"; bodily health; and even more substantive things, such as music or works of art, or the higher concepts of the mathematician or the man of letters. To have this in mind is essential in any study of our subject, because so many considerations enter into management when it is taken scientifically which either do not affect the balance sheet at all, or affect it adversely. We operate our businesses *to make money* largely because the making of money has been considered one of the best gauges by which the output and the efficiency of the management could be measured. *Production* is really what we are trying to get, and the earning—certainly the declaring of dividends—may from any economic standpoint mean absolutely nothing as to the efficiency of the management. Under certain forms of semi-military industrial control, it is possible, for instance, to get human beings to work twelve hours a day and seven days a week, at a killing pace and for a very low wage. Even this scheme does not always result in dividends, but even if it did we can all be profoundly thankful that it must be considered uneconomic in America today.

What we want in any industrial or other establishment, if we are to reach the highest point in productivity, is to have every individual use his or her highest powers to the best advantage. This is the final goal of scientific management. It is the goal both for the individual and for society. If you can picture a society in

which every unit is using his or her highest faculties to the best advantage, you will see that it approximates the millennium.

The moment you adopt this as a standard, however, you must frame your organization so that every employee from the humblest to the highest is given a chance to exercise his highest powers and to exercise them to the best advantage. He must not only not be hindered but he must be helped, and helped to the extent of having pointed out and developed faculties and powers of which he may have been unaware. Under scientific management we think we are learning how to do this. Alfred Marshall has called attention to the fact that perhaps half the brains of the world are in the so-called working classes and that "of this a great part is fruitless for want of opportunity." Under the new methods of scientific management this great storehouse of wealth will be tapped, not we hope for the benefit of the few, but for the benefit of all.

To define scientific management is no easy task. Hugo Diemer, professor of industrial engineering at Pennsylvania State College, says, in a recent book, that Mr. Taylor

> considers a manufacturing establishment just as one would an intricate machine. He analyzes each process into its ultimate simple elements and compares each of these simplest steps or processes with an ideal or perfect condition. He then makes all due allowances for rational and practical conditions and establishes an attainable commercial standard for every step. The next process is that of attaining, continuously, the standard, involving both quality and the interlocking, or assembling, of all of these primal elements into a well-arranged, well-built, smooth-running machine.

Mr. Taylor says that the philosophy of scientific management is embraced under these four principles:

> First: The development of a science in place of "rule of thumb" for each *element* of the work.
>
> Second: The scientific selection and training of the workman.
>
> Third: The bringing of science and the scientifically trained workman together through the co-operation of the management with the man.
>
> Fourth: An almost equal division of the work and the responsibility between the management and the workmen, the management taking over all work for which they are better fitted than the workmen, while in the past almost all of the work, and the greater part of the responsibility, were thrown upon the workmen.

Quite informally, scientific management may be thus defined:

a) It is a definite working policy applicable wherever human effort is put forth.

b) It is the introduction of the laboratory method in everyday affairs.

c) It is the acceptance of the dictates of science instead of those of personal opinion and tradition.

d) It is the establishment of the fact that not to know is no crime—that the crime is not being willing to find out.

e) It is a type of co-operation more intensive than the world has yet seen.

f) It is filling in—not bridging—the chasm between capital and labor.

g) It is making our industrial life square up with the best we know in our personal and social relations.

h) It involves a very radical change in the attitude both of the men and the management to the work on which they are mutually engaged.

My task is not to deal with the technique which grows out of the adoption of Mr. Taylor's four principles. It is rather to reflect the spirit in which they must be applied if they are to be true agents of efficiency, and then to show how when they are so applied they enhance the joy of living.

Practically everything that is done in developing scientific management in an establishment has for its object the setting of tasks. We have tried to avoid the use of this short and, to some, rather disagreeable sounding word, but the language does not seem to afford one that better describes what we have in mind. A task with us is simply a fair day's work and—let us not forget—one which can be repeated day in and day out, year in and year out, if necessary, without detriment to the physical, mental, and moral well-being of the person performing it. Unless you are able to set tasks, you cannot have scientific management. Now, to set a task requires more than a stop-watch. Before the stop-watch, or before any of the other mechanisms that are found useful in management, comes the building-up of a spirit of mutual confidence and helpfulness. To make my meaning entirely clear, let

me say that we never use a stop-watch on an employee except practically at his own request. I do not mean that we wait until the request is framed in so many words, because a good many people on whom we have used a stop-watch with a mutually satisfactory result cannot speak our language. Some of those who can speak our language might *think* the request, without the ability to formulate it in words. Anyone who arbitrarily uses a stop-watch, or any other such mechanism, for getting more work out of an employee, without having in mind that employee's greatest prosperity, and without doing it as much, or more, for the benefit of the employee than for anyone else, is a menace to society.

This place which the stop-watch has in scientific management simply illustrates our attitude toward the workers. We are all workers from the president of the company to the office-boy and the porter, and each one has to be individualized. You cannot have scientific management in one part of an establishment and not have it practically throughout. You cannot have one group of employees impose it on another group. You cannot have "fake" co-operation. To have the president of the company hold that his personal opinions and whims are to be taken into consideration, but that the vice-president and all the rest are to live by law, is to have an unworkable proposition. We do not ask anybody to accept our personal opinions, nor will we accept those of others. Facts must determine each question as it comes up. If you haven't the facts you must get them, whether they can be secured in five minutes at no expense, or whether it takes thirty years and the expenditure of hundreds of thousands of dollars, as it did in the case of the development of the slide rules for machine tools.

I have said that scientific management means the individualizing of the workers, and herein lies the heart of its social significance. As long as William Smith and Molly Brown are simply two units in a group of two hundred, one thousand, or five thousand employees, the individuality and individual welfare of these two workers is of very little moment. When, however, you set out to get from an industrial establishment its maximum production, made up as it is of the maximum production of all the William Smiths and all the Molly Browns, you will never get it unless you study each of them individually.

You must see in the first place that the rewards for high efficiency are not only full, fair, and accurate, but that they follow satisfactory completion of the work in the shortest possible time. It is not enough, as is the case in the profit-sharing plan, to have it come as a bonus at Christmas, twelve months after some of the work was done. Nor does it make for efficiency that Smith gets his whether he had any share in bringing about the result or not. The average job under scientific management takes about three hours to perform. The worker must receive his or her reward for a job efficiently performed within twenty-four hours of its completion. To bring this about requires a type of co-operation and a degree of co-operation that will come only as the result of the most farsighted and kindly interrelation between the different individuals who make up an industrial or other establishment. It is not the kind of co-operation that you get up in a selling force by bringing the men together in a room and filling them full of enthusiasm for increased sales. It can be brought about only after years of effort and following constantly a policy of something more than the square deal. Any effort to introduce scientific management in the absence of a genuine and painstaking co-operative spirit is utterly impracticable.

Scientific management must be relentless in seeing that each worker receives his or her reward and only for work efficiently performed. We must regulate the benefits according to the services rendered. Any system that tries to average up rewards is doomed to failure. At the same time it is the constant aim of scientific management to organize itself so as to be able to help, in the broadest fashion, those who are temporarily or permanently below the average, to be as largely productive as such farsighted assistance can make them. Yet this is not welfare work we are discussing. It is something so immeasurably superior to the best grades of welfare work that the two cannot be compared. It is something that is entirely self-supporting because it really means something to the workers.

Again, scientific management demands the entire elimination of the military system of control. The military system, of course, we inherit from the days when everybody had to "fight for it." It was designed in order to mass one's greatest strength at a given

place at a given moment of time. An industrial establishment is not operated for this purpose. What we are trying to bring about in industrial establishments is a steady, even flow of work, done under the minimum of tension and with the least possible discomfort and disorder. We find that to do work under these conditions the military system has no place and that we must functionalize. Under the functional system a man can take orders from more than one person; in fact, most of our work people take direct orders from eight different people, known as functional foremen. Let me show this by describing that functional foreman whose work illustrates my part of this subject perhaps better than any other. We call him the shop disciplinarian. Under scientific management only one man in the establishment has the authority to discipline employees and he disciplines anyone who may need it. The beautiful part of this is that after you have your disciplinarian appointed and the shop reasonably well organized on scientific management lines, the disciplinarian rarely has anything to do. The reason why he has nothing to do is that after he has been at work for any length of time it gets to be "good form" in the shop not to give him any work. The workman who is uncivil to his mates loses standing. As long as the military system is in control, the man who has the rank usually administers more or less discipline to everybody underneath him and this develops resentment and reaction. Altercations are frequent. With the military system it is usually the under dog that gets discharged. After the disciplinarian is installed and you issue instructions that when two workers get at loggerheads they are to send for him, it seems to take all the fun out of it. The disciplinarian is picked because he has good judgment and knows how to smooth out difficulties. In other words, he is a specialist.

Functional management leads ultimately to the democratization of our industries. Whether it be in the city or in the state or in the nation, we are finding out that democracy will not work with a few men controlling all operations, no matter how competent, farsighted, and amiable the few may be. Democracy in government means not only the rule of the people but the participation by the people in their government in the largest possible fashion.

In an industrial establishment the doing-away with the military control, and especially the functionalizing, makes every worker share, according to his ability, in the conduct of affairs. In other words, after scientific management has been introduced, the shop is run by the collective intelligence of the many, rather than under the "I say so" of those who, in the language of the day, own the business. Under this scheme the employees become more attached to a business. There are infrequent changes in the personnel and this aids very materially in wise administration.

After you have individualized your employees you are not entirely without interest in what they do when they are not at work. It is the experience of every man who has set tasks and watched any considerable number of workers perform them, that sometimes they fail to earn their reward, which we call the bonus, and yet no reason for this can be found in the shop. Nine times out of ten you will find a sick child or wife at home, the worker in debt, or some other purely personal reason for working below par. Working without the closest spirit of confidence and co-operation, no opportunity is afforded for finding out these sources of inefficiency. On the other hand, it is only after your organization is working under the conditions of an industrial family that it becomes almost impossible not to know that this man or woman is in debt, that another has sickness at home, or has some other cause of anxiety.

Then you will find that there are a hundred and one kinds of questions which you ask employees before hiring them that you never thought of asking before. There are under this kind of relationship a hundred and one things that you have in your mind as possibly affecting your employees that you never gave thought to before. I can take you to cotton mills in New England where they hardly stop the machinery when a man loses his arm and where the level of morality among employees of both sexes is at a very low ebb. Compare this with a scientifically managed plant, where it is almost as hard to hide sickness and distress as it would be in your own families. It is the duty of an industrial family—not necessarily of the one individual whom we call the employer—to see to it that the level of morality is high and always going higher. This makes

for individual efficiency and prosperity; and we are finding out more clearly every day that group prosperity is not possible, without individual prosperity. High wages there must be, but high wages must be accompanied by efficiency or they will avail but little.

Any establishment in which scientific management is being developed must necessarily be an educational institution. If you individualize your employees you must let them rise as far as their physique and mentality will permit. You cannot have annoyed and disaffected employees. We have only two classes of people. There are always those who have reached the limit of their capacity and know it and want to be let alone, fully realizing that they are better off working for you than they could possibly be working for anyone else. The only other group are those who are growing, those who have not yet reached their full capacity. These you must help in every possible way, and if their line of best advancement does not lie within your establishment you must make it one of your most important duties to see to it that they get this chance for advancement somewhere else. Here is one of my principal criticisms of railroad management. The railroads are especially likely to have a third class of people, who have never had what they consider a chance—men who have advanced so far and then have stood still for no reason upon which you can lay your finger. These men feel, whether rightly or wrongly, that they have within them the possibilities of further growth. These men are invariably "against the government," and are a source of weakness in any organization. Something is wrong here. Either they were badly selected or they have been badly trained, or some time since they should have been given a chance elsewhere. Perhaps it is a little of all three.

This paper would be incomplete did I not refer to the attitude of scientific management toward criticism. My eyes were opened to the novelty of our position toward constructive criticism by the way in which my report on *Academic and Industrial Efficiency* was received by the colleges, and more recently by the attitude taken by the railroad world toward scientific management. We feel that everybody in the establishment, from the office-boy up—and those out of the establishment for that matter—should be given the

widest opportunity for making suggestions and criticisms. Suggestions that are in any way adopted should be fairly compensated for. The truth is that after scientific management has made any material progress in a plant it becomes increasingly difficult for those not making a special study of any given matter to make suggestions in regard to it. This does not change our attitude toward the desirability of constructive criticism. We are on our knees begging for it, and the man or the woman who takes the trouble to criticize us most freely and frequently is our best friend. It is a far cry from this attitude toward that which obtains in many establishments—I suppose in the majority of establishments—where an employee is liable to be discharged for constantly making suggestions. We do not see in constructive criticism any of the elements of fault-finding. Surely until we are willing to face the truth in our industries, let it come from where it will, we cannot even begin to allege that we are being scientifically managed.

I have said that scientific management is not something that can be bought in a box. Nor can you lay it on like a suit of clothes. You do not "get it" as we are told one gets certain varieties of religious experience. The truth of the matter is that scientific management *gets you*. If one could casually introduce scientific management in an establishment, much as one would introduce a system of bookkeeping, it would hardly warrant our giving it very much attention. Scientific management can be developed in any group of people only through a course of individual and collective discipline that must last over a long period of years.

Finally, let me say that there is nothing to prevent scientific management from becoming a nuisance—even a menace—in an industrial community. But the same criticism can be made of democracy—even of Christianity—if either is allowed to drift from a genuine purpose or into the hands of charlatans. In my opinion, we shall never fully realize either the visions of Christianity or the dreams of democracy until the principles of scientific management have permeated every nook and cranny of the working world.

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THE TRAINING OF INDUSTRIAL ENGINEERS

Men and women are strangely hard to move or lead from their accustomed way. A sense of the difficulty of such change is perhaps the first feeling of most men who work in the science of management. Little by little, as the engineer goes forward, however, he begins to see that the possession of certain powers enables him to conquer not only hesitant men and recalcitrant machines, but baffling problems which involve both men and machines. And the powers which enable him to do these things are science and common-sense. Those are the two needs which the industrial engineer himself ardently desires to gain to a greater and greater degree. Those are the two needs which I present here as the basis of the training of men who intend to make the science of management their vocation.

I assume that no course in the science of management would be begun before the end of the Sophomore year in college. The man who reaches the Junior year of college or technical school must have had some training in science and mathematics or he would not be eligible to enter the scientific management course. He must have acquired some common-sense and scientific attitude on his way, and the knowledge of science and common-sense so gained should be sufficient to enable him to recognize that in electing scientific management he is deliberately electing to follow a long and arduous road. The problem before us, then, when we discuss the work of men electing industrial engineering courses, is not one of supplying common-sense to men who have none, but rather of taking men with some common-sense and some knowledge of science and raising what they have to the highest possible power.

How, then, can the industrial engineer become a scientist, attain the scientific attitude of mind? More difficult still, how can he obtain common-sense?

By welding the scientific work of the classroom with the shop-

work of the factory; by making the laboratory hours, hours that are spent with wage-earners striving for their daily wage, instead of with fellow-students who are studying rather than earning; by making the classroom hours full of the splendid life, spirit, and movement of American industry. Laboratory and classroom hours alike must be filled with reality rather than with pure theory or with theory quite unrelated to the practical world.

The ignorance of the American undergraduate as regards industry seems to me appalling. The matter of his courses, the content of his texts seem to the undergraduate to belong to a world quite separate from the busy, stirring factory world outside the academic walls. He must then, first of all, get in touch with the shop. And I insist that he can do that nowhere save in actual operating shops among men who are working for their daily wage. No shop practice in the school will produce a like result. Shop-sense is one of the most valuable possessions of the industrial engineer. That sense comes only through actual shop practice. Once possessed it means that the man has thereafter the freedom of the shop.

To attain the desirable ends of knowledge of science and possession of common-sense I propose that any course in the science of management shall consist of classroom work as outlined below and of laboratory work carried on in actual operating shops. That means that manufacturers who are broad-minded enough to be willing to assist the college, and instructors broad-minded enough to recognize the limitations of industry must co-operate in giving the laboratory instruction in shop practice to the students. I believe both groups of men exist and I feel that through their combined efforts the student should have an opportunity to spend the summers of his Sophomore and Junior years in actual shop practice, while three afternoons a week during the scholastic year should see him working in the shop.

What underlying thought must be before the men who make the courses?

Again to a definite question we can give a definite reply. The industrial engineer is dealing in all cases with both *men* and *machines*. He must study "man" in his relation to his industrial environ-

ment—not any single class of men, but all the men engaged in industry. He must study "machines," not alone in their relation to their product, but also in relation to the human beings who operate them. It is his task to bring the best that modern science has to the aid and well-being of man.

It is in the development of his pupil's studies of men that the wise teacher of scientific management will work most steadfastly in correlating the allied courses, mentioned later, in psychology and physiology, in economics and sociology, with the courses in the science of management, and with the work of living men and whirring machines. What percentage of flat failures occur because men have only "one side to their head," because they are quite unable to see the relation of many interweaving threads in a given problem, it is hard to tell. But I believe it is no small number. The industrial engineer must recognize the presence of many factors in a problem. He must solve equations of not only two unknown quantities, but of a dozen unknown quantities, so to speak. And the correlation of his courses in class with each other and with life will do much in the way of enabling him to do so.

It remains briefly to sketch the content of the direct courses on this subject and to state their desired end. To do this I use again the question form.

When should the work begin, and how much of the student's time should it occupy?

Direct work in scientific management should begin either at the end of two years or of four years in college. The direct and allied special classroom courses should occupy one full year of collegiate training, divided between two years' work, making a half-year's work in scientific management during both the Junior and Senior years. The shopwork should occupy two summer vacations and three afternoons a week during each of the two years.

What courses should be offered?

A dominant course in the science of management running through two years, allied with courses in economics, sociology, psychology, physiology, hygiene and sanitation, theory and practice of accounting. All these should be in addition to the student's more direct work in science, mathematics, English, and foreign

languages, which occupy the time of three out of the four collegiate years—if the courses are made undergraduate ones.

What should be the content of the scientific management courses given during the four half-years that comprise the Junior and Senior years of most colleges and technical schools?

The first half-year should be devoted to a general view of four picked industries—in order that the student may see industry more or less as a whole—and to the study of the principles of scientific management. The laboratory work for this course should consist of the broad outlined study of four plants from the time of the receipt of the first inquiry from the prospective customer to the final entry of the payment for the bill and the calculation of the cost. The classroom work for this course should be devoted to a thorough grounding in the basic principles of organization, and to study of the principles of scientific management.

It is most essential that the student should obtain at the very start a clear realization of the difference between system and science. It is most essential also that he should come to understand that, while certain problems solved for one industry may be solved for all industry, such general solutions cannot be presumed upon. He should know that every new business will contain new problems, which must be solved by the use of all the knowledge of the past plus all the imaginative genius he can hope to possess. That is to say, the student must learn that a mechanism used successfully in one place cannot be bodily transported to another with hope of instant success. By the end of the first half-year each individual taking the course should have come to realize that he is studying the principles of a science which are applicable to every case, not memorizing a set of rules or inheriting a stock of recipes. The study of four actual operating plants will aid him greatly in this realization.

The second half-year should be devoted in the classroom to a detailed study of the planning-room and the processes involved in getting work into the shop, of stores, routing, specifications, etc.—planning in general, in a word. The laboratory work should consist of actual planning-room experience in the shop.

It is entirely true that there is a question as to whether planning-

room experience should follow or precede shop training. It may, therefore, be a question whether planning should be put in this course. It is my own belief that the student will master his shop theory better the third half-year from the fact that he has discovered the basic reasons of the work in the planning-room. It should be noted, moreover, in this connection that I have assumed that the student has had a summer's experience in actual shop practice as a prerequisite of the course, and that he has had a half year of general preliminary study.

The third half-year should be devoted to a detailed study of work in the shop (especially of the teaching work of the functional foreman), of inspection, and of task work. All of this except the study of task work should be done in actual plants. The task work should be done on fellow-students in the shops of the school. No untrained man should ever be put on actual task-setting.

The third half-year offers a great opportunity to impress upon the student the importance of the teaching function of his work. The whole theory of functional foremanship is a theory of education and a great part of the time of an industrial engineer must be spent in teaching the men with whom he is working. Adequate powers of expression are by no means common among our recent graduates. The teacher of scientific management can never forget that the work of his pupils must show in the life-work of the men with whom they are dealing. The bridge-builder leaves a physical monument largely untouched by the later thought of men. The industrial builder must educate in such a way that his work will go progressively forward in the minds of men. That is true education, and education is true only when it obtains adequate expression.

The fourth half-year should be devoted to studies in bringing all the best that science offers to the aid of industry—to work in costs, to work in the determining of policies by studies of sales, purchasing, and the like, and to the co-ordination of the work of the three half-years already outlined.

The course of the fourth half-year should be broad enough to give the student some concept that great movements of trade exist and that they are factors which he must meet and use. The world is fairly well provided with men who can look after a few details.

It is very poorly provided with men who can care for great constructive work. One of the greatest industrial leaders of our time said to me the other day: "The greater the affairs of a corporation, the smaller the number of men who can deal with them. It seems to be a true inverse proportion. There are ten men who can think in a hundred thousand dollars, to one who can think in a million, and ten who can think in a million to one who can think in ten millions."

I should hardly expect any course to give an undergraduate a great grasp of comprehensive plans. There is, however, no reason why we should hitch our wagon to the lowest of the stars when we can find higher ones within our reach.

In the foregoing résumé of a course in the science of management I have made no reference to many subjects I should have been glad to consider, to reports and theses, to methods and policies. Considerations of brevity forbade. I must turn again to my catechism and end with three brief questions and three brief answers.

What should the allied courses teach?

The relation of man to industry and to his general environment.

What should the college courses in English teach?

The power of expression.

What should the work in scientific management teach?

That scientific management is a change of mental attitude (mental attitude, now, as always, the most powerful force among men) which makes employer and employee pull together instead of apart, which brings all that is best in science to the aid of every man in industry, and which, by its substitution of exact knowledge for the chaos of guess work and ignorance, makes progressively for justice and for the coming of the "new industrial day."

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SECURITY PRICES AND INTEREST RATES IN 1910–12

In May, 1910, July, 1910, and April, 1911, the *Journal of Political Economy* published rather elaborate tables of security prices and interest rates for each month of the twenty years 1890–1909. The series included index numbers of common stocks, preferred stocks, and bonds, together with bond yields, discount rates on commercial paper, and call-loan rates. The numerous uses found for these figures make it desirable to bring them down to date.

Concerning the materials and methods employed in compiling the tables, full explanations were given in the articles mentioned above, and need not here be repeated. Volume and page references will suffice to show upon what tables for 1890–1909 the present extensions should be spliced. At the end of the article a few of the most important data will be given for the full period of twenty-three years now covered by the tables.

I. THE INDEX NUMBER OF COMMON STOCKS

The depression in trade and industry which followed the panic of 1907 was extraordinarily severe. But recovery began with unusual promptness. Within a year of the panic finance recuperated, and in the second half of 1909 manufacturing, wholesale trade, and retail trade showed marked gains. Meanwhile in England and Germany the crisis of 1907 had not degenerated into panic, the depression of 1908 had been less severe, and the recovery had begun later in 1909 and proceeded at a less rapid pace. Still the general course of the business cycles on the two sides of the Atlantic had been similar. But a striking difference presently appeared. The European revival suffered no serious check and developed into full-blown prosperity in 1910–12. On the contrary, the American revival proved as brief as it was prompt. Depression returned in 1910 and lasted through 1911. Finally, in 1912, America closed its second period of liquidation after the panic and entered upon its second period of revival. Despite the uncertainties of a presidential year, a long series of labor troubles, a continuation of the trust prosecutions which many had blamed

TABLE I

AVERAGE RELATIVE PRICES OF COMMON STOCKS IN FORTY TRANSPORTATION COMPANIES BY YEARS, QUARTERS, AND MONTHS 1910–12
AVERAGE ACTUAL PRICES IN 1890–99 = 100

(Continues tables on pp. 349 to 367, *Journal of Political Economy*, XVIII)

	BY YEARS			
	Low	High	Spread	Average
1909	266	288	22	277
1910	243	265	22	254
1911	241	256	15	248
1912	236	249	13	243

	BY QUARTERS							
	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	Low	High	Low	High	Low	High	Low	High
1910	261	287	246	270	225	244	244	260
1911	245	261	250	263	237	256	235	248
1912	231	245	240	253	239	251	234	248

TABLE I—*Continued*

	By Months							
	Relative Prices of Stocks				Millions of Shares Sold	Average Call-loan Rates Per cent	Net Imports (+) or Exports (−) of Gold in Millions of Dollars	Current Events Affecting the Stock Market
	Low	High	Spread	Turning-points				
1910 January....	262	298	36		24.5	4.72	− 4.0	Taft's message recommending increase in powers of Interstate Commerce Commission, etc.; Hocking Coal & Iron Co. in hands of receivers; fall of cotton and grain prices; slackening activity in steel trade
February...	252	275	23	Min.	16.0	2.78	+ .1	Signs of declining activity in several industries; failure of Fisk & Robinson
March.....	268	289	21	Max.	15.0	2.88	+ 2.6	N.Y. Central dividend rate increased; numerous strikes and wage advances
April.....	254	277	23		14.1	3.28	−34.2	Bad crop reports; gold exports, dear money, intimations of further prosecutions of corporations
May.....	252	272	20		11.9	3.63	+ 2.4.	Large foreign sales of railway securities; crop prospects better
June.....	233	265	32		16.3	2.77	+ 3.0	Injunction against advance of railway rates; Interstate Commerce Commission reduces rates west of the Missouri
July.....	219	246	27	Min.	14.3	2.41	+ 9.5	Injury to spring wheat; Interstate Commerce Commission secured postponement of advances in freight rates; further restriction of trade; Farquhar-Pearson securities taken over by Kühn, Loeb & Co.
August.....	228	250	22		10.4	1.55	+ 9.7	Gains by "Insurgents" in state conventions; further restriction of trade
September..	232	245	13		7.7	2.00	+ 1.4	Minnesota rate decision favorable to railways; Democrats carried Maine; revival of demand for bonds

1910 October....	247	266	19	Max.	13.5	3.13	+ 3.5	Crops better than expected; Democratic success at elections forecasted; Bank of England raised rate to 5 per cent
November..	246	263	17		10.7	3.23	+ 2.9	Democrats captured House of Representatives; federal suit against "Sugar Trust"; pessimistic trade forecasts
December..	243	255	12	Min.	9.8	3.38	+ 3.6	Encouragement received from Taft's message to Congress and decision in Anthracite Coal cases; further federal suits against corporations; additional increases of wages by railways; continued restrictions of trade
1911 January....	246	262	16		10.4	3.18	+ 8.6	Carnegie Trust Co. closed; restriction of production in leather and cotton trades; large loan flotations by New York City and by railways; prospects of steel trade better; net earnings of railways larger; money market easy
February...	250	267	17	Max.	10.2	2.28	+ 5.4	Decline in commodity prices; several new railway loans; further improvement in steel trade; plan for double tracking Union and Southern Pacific announced; market broke on 24th after announcement that Interstate Commerce Commission refused to permit advance of railway freight rates
March.....	251	265	14		6.8	2.28	+ 3.6	N.Y. Central Railroad reduced dividend; railway net earnings lower; troops sent to Mexican border; new orders in steel trade smaller; copper stocks larger; money market dull
April.....	249	260	11	Min.	5.6	2.30	+ 3.0	Congress met in extra session; further signs of reaction in general business; increasing demand for bonds; rates for money very low
May.....	249	263	14		11.1	2.31	− 1.8	Supreme Court decision in Standard Oil case followed by temporary revival of speculation; general cut in steel prices; House of Representatives began investigation of U.S. Steel Corporation

TABLE I—*Continued*

	By Months							
	Relative Prices of Stocks				Millions of Shares Sold	Average Call-loan Rates Per cent	Net Imports (+) or Exports (−) of Gold in Millions of Dollars	Current Events Affecting the Stock Market
	Low	High	Spread	Turning-points				
1911 June.....	259	271	12	Max.	10.5	2.40	+ 1.7	Sale of Panama Canal bonds highly successful; government defeated in suit to separate Southern Pacific from Union Pacific, but won suit against "Powder Trust" and began several new prosecutions under Sherman law; crops injured by dry weather
July.....	255	265	10		5.5	2.36	+ .4	Further damage to grain crops, and wild speculation for advance of prices; Interstate Commerce Commission's decision regarding Pacific Coast rates deemed unfavorable to railways; new trust prosecutions; anxiety over Moroccan crisis
August.....	232	262	30		15.0	2.31	+ 3 6	Supporting of prices apparently ceased on Stock Exchange; liquidation on European account; threatened labor difficulties for railways; prices of steel products weaker; new trust prosecutions
September..	224	242	18	Min.	17.4	2.28	+ 2.4	Speeches by Taft and Wickersham threaten extensive prosecutions of trusts; uneasiness in European markets; loans by New York to Paris and Berlin; Tripolitan war; price-cutting in steel; western railway strikes
October....	232	246	14		10.9	2.33	+ .1	Federal suit against U.S. Steel Corporation; Wickersham approved plan of "Tobacco Trust" for reorganization; steel earnings larger; revolution in China; monetary tension in Europe relaxed; New York bought $13,000,000 Prussian treasury notes; money a drug

1911 November..	238	253	15		14.9	2.72	−10.5	Circuit Court approved plan for disintegration of "Tobacco Trust"; Commerce Court enjoined order of Interstate Commerce Commission in Pacific Coast rate cases; increased railway orders for steel products; financial conditions abroad easier; over $10,000,000 gold sent to Canada; New York reserves below 25 per cent
December..	240	252	12	Max.	9.1	4.03	+ 3.7	Hadley Commission's report on railway securities well received; increasing orders for iron and steel; further trust prosecutions; receivers appointed for Wabash; rates for money somewhat firmer
1912 January....	230	244	14		10.9	2.43	+ 3.2	Railway earnings smaller; C.M. & St.P. reduced dividend; wage increase demanded by engineers; Lawrence strike; industry more active; Equitable fire; monetary ease; loans made to Europe
February...	230	241	11	Min.	7.1	2.28	− 7.7	Roosevelt announced that he would accept nomination; further improvement in steel, copper, and textile trades; continued ease in money; heavy gold exports to Paris
March.....	234	250	16		14.6	2.42	− 3.1	Bull movement, supported by growing activity in trade; earnings larger; anthracite coal strike called; wage increase in textile mills; deficit in N.Y. bank reserves
April.....	243	257	14	Max.	16.0	3.00	+ 2.1	Titanic disaster; Roosevelt gaining; unfavorable crop reports; labor controversies less threatening; floods on the Mississippi; suit against Harvester Co.; increase in bank reserves; Bull clique supporting market
May.....	240	254	14		13.7	2.75	− 1.1	Further gains by Roosevelt; coal miners returned to work; crop prospects poor; railway firemen demanded higher pay; metal trades active, but U.S. Steel earnings small
June.....	237	247	10		7.2	2.75	− 1.6	Taft nominated; steel trade active; crop conditions improved; "Money-Trust" inquiry begun

TABLE I—*Continued*

	By Months							
	Relative Prices of Stocks				Millions of Shares Sold	Average Call-loan Rate Per cent	Net Imports (+) or Exports (−) of Gold in Millions of Dollars	Current Events Affecting the Stock Market
	Low	High	Spread	Turning-points				
1912 July.....	235	245	10	Min.	7.2	2.88	.....	Wilson nominated; crop prospects excellent, except cotton; metal trades very active; money dearer; deficit in N.Y. bank reserves
August.....	240	253	13		9.0	2.84	.....	Crop prospects excellent; Roosevelt nominated; all tariff bills failed; continued activity of trade; money less easy
September..	242	254	12	Max.	10.1	2.63	.....	Large crops assured; trade active; increased railway earnings; brisk demand for money
October....	238	254	16		14.2	5.33	.....	Balkan War; acute tension in European markets; foreign liquidation in American securities
November..	237	248	11		8.7	6.38	.....	Democrats captured presidency and Congress; Europe repurchasing American securities; money rates stiffened
December..	226	242	16	Min.	12.6	6.50	.....	Supreme Court dissolved Union Pacific and Southern Pacific merger; trade active; Balkan peace conference

for blighting the revival of 1909, and the outbreak of war in Europe, —despite all these difficulties, the volume of business expanded month after month. Not until the very close of the year, when the prospect of tariff revision began to disturb many minds, was the pace of advance moderated, and even then the tone of business in most quarters remained fairly confident.

The stock market reflected these successive changes in business conditions much more faithfully in 1907–11 than in 1912. The lowest point touched by the index number during the panic was 159.0 in November, 1907.[1] In 1908 the lowest point was 159.5 in February. Even while industrial stagnation was at its worst, stock prices rose. By July, 1908 the index number was above 200; by December, above 250. When general business improved in 1909 a further rise occurred in stocks. By June stock prices were actually higher than ever before in the whole period since 1890, and the rise continued until the index number stood at 295.5 in December—16.0 points above the previous high record of January, 1906.

In this upward rush of quotations the stock market had discounted the re-establishment of prosperity while general business was still in the stage of revival. Consequently, when the revival was blighted in 1910 and business relapsed into depression, stock prices suffered a grievous fall. By July, 1910, the index number stood at 232.5—a loss of 63.0 points in seven months. During the rest of 1910 and all of 1911 the state of mild depression obstructed every campaign for the rise. The highest point touched in this period was 265.0 in June, 1911, when the government was defeated in its first suit to separate the Union Pacific and Southern Pacific railways. But efforts to maintain that level of prices were unavailing. By September, 1911, the index number was back at 233.0, and after a slight rise at the end of the year it relapsed again to 235.5 in February, 1912.

In 1909, the stock market had run far in advance of the revival

[1] This and the following figures are means of the highest and lowest relative prices as shown by the tables. Readers critically interested in these tables may be reminded that the numerous small discrepancies between figures for months, quarters, and years arise from imperfections in the original data—not from inaccurate computations. See *Journal of Political Economy*, XVIII, 348, note 2.

of general business; in 1912 it lagged behind. While manufacturers were booking orders far ahead, while wholesale and retail merchants were increasing their stocks and turning over their goods rapidly, while basic commodity prices were rising, and while bonuses were being promised for prompt delivery, the stock market rose only 14.5 points from February to April, then kept a fairly even course until after the presidential election, and finally receded

TABLE II

AVERAGE RELATIVE PRICES OF FORTY COMMON STOCKS, CLASSIFIED ACCORDING TO THEIR AVERAGE ACTUAL PRICES IN 1890–99

(Continues table on p. 376, *Journal of Political Economy*, XVIII)

	17 Stocks Selling at Less than $25 in 1890–99	13 Stocks Selling at $25 to $99 in 1890–99	10 Stocks Selling at More than $100 in 1890–99
1909	332	271	193
1910	301	260	166
1911	296	253	160
1912	278	257	165

TABLE III

AVERAGE RELATIVE PRICES OF SEVEN GROUPS OF TRANSPORTATION STOCKS IN 1909–12

(Continues table on p. 379, *Journal of Political Economy*, XVIII)

	5 North Atlantic Railways	4 Coal-Carrying Railways	6 Southern Railways	8 Middle-Western Railways	7 North-western Railways	5 Pacific Railways	5 Express Steamship and Telegraph Companies
1909	159	340	358	201	296	445	177
1910	141	331	349	197	243	406	148
1911	140	328	345	178	244	405	137
1912	138	364	347	173	210	397	130

to 234.0 in December. For the year as a whole, prices averaged less than in 1911, as in 1911 they had averaged less than in 1910, and in 1910 less than in 1909. Investors and speculators may have feared lest this second revival should suffer the fate of the first, or doubted whether as matters stood, an increase of traffic would bring a corresponding increase of profits to the railways. Certainly the sales of American securities by Europeans after the Balkan War broke out, the fear of tariff changes when the Demo-

crats captured the Senate as well as the House and the presidency, and the final success of the government in its suit to separate the Union and Southern Pacific railways, were powerful repressive influences in the stock market.

Tables II and III show that the recession of stock prices since 1909 has occurred among high-grade and low-grade stocks, and among the stocks of railways in every section of the country except the anthracite coal-mining district. Not all these groups however show a fall from 1911 to 1912. On the contrary, the medium and high-grade stocks which appeal primarily to the investor scored a slight gain in 1912, while the low-grade stocks suffered a considerable fall. Among the geographical groups, the anthracite coal stocks made a notable advance in 1912, and the southern railways a slight advance.

II. THE INDEX NUMBER OF PREFERRED STOCKS

Preferred stocks have shared with common stocks in the general decline since 1909; but their fall has been more moderate. On the basis of yearly averages the drop from 1909 to 1912 is 46 points in one case, against 65 points in the other; on the basis of monthly figures it is 64.3 and 94.5 points respectively. But while preferred stocks have been much steadier in price than common stocks in 1910–1912, they have undergone changes much more violent than those shown by commodity index numbers.

TABLE IV

AVERAGE RELATIVE PRICES OF PREFERRED AND COMMON STOCKS IN TEN RAILWAYS BY YEARS, QUARTERS, AND MONTHS, 1910–12

AVERAGE ACTUAL PRICES IN 1890–99 = 100

(Continues tables on pp. 515, 516, and 519, *Journal of Political Economy* XVIII)

	BY YEARS							
	Low		High		Spread		Average	
	Preferred	Common	Preferred	Common	Preferred	Common	Preferred	Common
1909	164	267	174	293	10	26	169	280
1910	143	234	153	262	10	28	148	248
1911	134	224	141	242	7	18	138	233
1912	120	208	125	221	5	13	123	215

TABLE IV—*Continued*

	By Quarters							
	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
	Low	High	Low	High	Low	High	Low	High
1910 Preferred..	156	167	147	158	132	142	138	146
Common..	257	294	239	271	213	237	226	247
1911 Preferred..	140	146	139	146	132	140	126	134
Common..	231	249	233	248	219	239	214	233
1912 Preferred..	122	127	121	127	120	123	118	123
Common..	204	218	210	225	210	222	207	220

	By Months											
	1910				1911				1912			
	Preferred		Common		Preferred		Common		Preferred		Common	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
Jan.....	160	176	259	309	138	144	229	247	123	128	203	219
Feb.....	151	162	247	279	141	147	233	254	122	120	203	214
March...	157	164	264	293	141	145	232	246	122	128	205	222
April....	151	162	250	283	138	143	228	241	126	131	217	231
May.....	150	158	248	272	138	146	230	247	120	127	210	225
June.....	140	152	218	257	141	149	240	256	118	124	204	220
July.....	127	142	201	234	140	144	240	249	118	121	205	218
Aug.....	133	143	215	240	132	141	212	243	120	123	211	224
Sept.....	137	142	223	236	124	136	206	226	121	125	214	224
Oct.....	141	150	231	255	128	136	212	233	120	126	210	224
Nov.....	139	147	228	249	128	135	220	238	119	124	211	222
Dec.....	135	140	220	236	121	131	208	227	115	118	200	214

III. INTEREST RATES UPON BOND INVESTMENTS AND SHORT LOANS

Business depression disposes investors to diminish their purchases of speculative securities, and to increase their purchases of gilt-edged bonds. Hence the prices of bonds usually rise and the interest actually yielded by them usually declines in depressions. This rule held of the hard times of 1908 when compared with the flush times of 1907; but it did not hold of the depression of 1910–11 as compared with the revival of 1909. After the panic of 1907, bond yields reached their lowest point in the first third of 1909, and then, as business improved, bond yields rose. When the revival

faded away into renewed depression this was not checked, as one might have expected. On the contrary, yields averaged decidedly higher in 1910 than in 1909 and a little higher in 1911 than in 1910. With the return of activity in 1912 the upward trend was reinforced.

The explanation of this rise of bond yields through revival, depression, and renewed revival, must be sought in the effort of investors to force the overdue adjustment of long-time interest

TABLE V

ACTUAL AND RELATIVE RATES OF INTEREST YIELDED BY INVESTMENTS IN TEN RAILWAY BONDS, BY YEARS, 1910–12

(Continues table on p. 272, *Journal of Political Economy*, XIX)

	Actual Rates Per cent			Relative Rates Average Actual Rates in 1890–99 = 100		
	1910	1911	1912	1910	1911	1912
Chicago & Eastern Illinois	4.33	4.35	4.44	86	87	89
Missouri, Kansas & Texas	4.08	4.12	4.22	83	84	86
Wabash	4.42	4.50	4.58	93	94	96
Chesapeake & Ohio	4.25	4.26	4.35	90	91	93
Chicago, St. Paul, Minneapolis & Omaha	4.14	4.13	4.23	90	90	92
Chicago, Burlington, & Quincy	4.08	4.11	4.18	90	91	92
Central Railroad of New Jersey	4.02	4.06	4.12	90	91	92
Chicago, Milwaukee, & St. Paul	4.03	4.05	4.08	95	95	96
New York, Chicago & St. Louis	4.04	4.03	4.04	100	100	100
West Shore Railroad	3.96	3.97	4.02	103	104	105
First five	4.24	4.27	4.37	88	89	91
Second five	4.03	4.04	4.09	96	96	97
All	4.14	4.16	4.23	92	93	94

rates to the higher level of commodity prices. Bond-holders, like all other classes in the community, have been affected by the higher cost of living, and have sought a countervailing increase in money income. The article published in April, 1911, showed that on their current investments in railway bonds, buyers were getting in 1909 less than nine-tenths of the return which similar investments had yielded them in 1890–99, though living expenses were much higher. Even wage-earners had fared better. Since the cost of living has risen rather than fallen since 1909,[1] bond-holders

[1] See *Bulletin of the United States Bureau of Labor Statistics*, No. 113, March, 1913, p. 35.

TABLE VI

ACTUAL AND RELATIVE RATES OF INTEREST ON BONDS, COMMERCIAL PAPER, AND CALL LOANS IN NEW YORK, BY YEARS, QUARTERS, AND MONTHS, 1910–12

(Continues tables on pp. 273, 275, and 280, *Journal of Political Economy*, XIX)

	Actual Rates of Interest Per cent					Relative Rates of Interest Average Actual Rates in 1890–99 = 100				
	Bonds		Commercial Paper		Call Loans at Stock Exchange	Bonds		Commercial Paper		Call Loan at Stock Exchange
	West Shore R.R.	Av. of 10 Rail-Road Bonds	4–6 Months	60–90 Days		West Shore R.R.	Av. of 10 Rail-Road Bonds	4–6 Months	60–90 Days	
YEARS										
1909	3.89	4.00	4.67	3.86	2.70	102	89	78	84	82
1910	3.96	4.14	5.72	5.01	2.97	103	92	96	109	90
1911	3.97	4.16	4.71	4.02	2.57	104	93	79	88	78
1912	4.02	4.23	5.41	4.74	3.52	105	94	90	103	107
QUARTERS										
1910—1st	3.95	4.08	5.22	4.56	3.41	103	90	87	99	104
2d	3.97	4.16	5.51	4.77	3.25	104	92	92	104	99
3d	3.96	4.18	6.26	5.44	1.95	103	93	105	119	59
4th	3.96	4.14	5.98	5.26	3.24	103	92	98	115	98
1911—1st	3.96	4.14	4.64	3.98	2.62	103	92	78	87	80
2d	3.97	4.15	4.40	3.66	2.33	104	92	74	80	71
3d	3.98	4.16	4.96	4.15	2.32	104	93	83	91	71
4th	3.98	4.19	4.93	4.30	2.98	104	93	83	94	91
1912—1st	3.98	4.17	4.68	3.95	2.38	104	93	78	86	72
2d	3.99	4.20	4.83	4.11	2.83	104	93	81	90	86
3d	4.02	4.25	5.63	5.03	2.78	105	95	94	110	84
4th	4.08	4.29	6.50	5.88	6.07	107	96	109	128	184
MONTHS										
1910—Jan	3.94	4.06	5.28	4.75	4.72	103	90	88	104	143
Feb	3.94	4.07	5.16	4.44	2.78	103	90	86	97	84
March	3.97	4.10	5.23	4.50	2.88	104	91	87	98	87
April	3.98	4.13	5.59	4.75	3.28	104	92	93	104	100
May	3.99	4.16	5.45	4.75	3.63	104	92	91	104	110
June	3.95	4.18	5.50	4.81	2.77	103	93	92	105	84
July	3.98	4.20	6.16	5.38	2.41	104	93	103	117	73
Aug	3.96	4.19	6.30	5.43	1.55	103	93	105	118	47
Sept	3.95	4.13	6.31	5.53	2.00	103	92	105	121	61
Oct	3.95	4.12	6.21	5.56	3.13	103	91	104	121	95
Nov	3.96	4.14	6.15	5.50	3.23	103	92	103	120	98
Dec	3.96	4.15	5.28	4.66	3.38	103	92	88	102	103
1911—Jan	3.95	4.13	4.61	3.98	3.18	103	92	77	87	97
Feb	3.97	4.14	4.72	4.09	2.28	104	92	79	89	69
March	3.97	4.16	4.59	3.88	2.28	104	93	77	85	69
April	3.98	4.15	4.28	3.66	2.30	104	93	72	80	70
May	3.96	4.14	4.33	3.63	2.31	103	92	72	79	70
June	3.96	4.14	4.63	3.69	2.40	103	92	77	81	73
July	3.96	4.15	4.79	3.78	2.36	103	92	80	83	72
Aug	3.99	4.15	4.86	4.19	2.31	104	92	81	92	70
Sept	4.00	4.17	5.33	4.54	2.28	105	93	89	99	69
Oct	3.99	4.20	4.93	4.35	2.33	104	93	83	95	71
Nov	3.98	4.18	4.72	3.91	2.72	104	93	79	85	83
Dec	3.96	4.19	5.25	4.63	4.03	103	93	88	101	123
1912—Jan	3.98	4.17	4.63	3.90	2.43	104	93	77	85	74
Feb	3.98	4.16	4.50	3.75	2.28	104	93	75	82	69
March	3.99	4.18	4.91	4.19	2.42	104	93	82	91	74
April	3.98	4.18	5.00	4.15	3.00	104	93	84	91	91
May	3.99	4.19	5.00	4.19	2.75	104	93	84	91	84
June	4.00	4.22	4.50	4.00	2.75	105	94	75	87	84
July	4.01	4.23	5.08	4.53	2.88	105	94	85	99	87
Aug	4.02	4.23	5.69	5.00	2.84	105	94	95	109	86
Sept	4.03	4.28	6.13	5.56	2.63	105	95	102	121	80
Oct	4.06	4.30	6.50	5.93	5.33	106	96	109	129	162
Nov	4.07	4.29	6.50	5.72	6.38	106	95	109	125	194
Dec	4.10	4.29	6.50	6.00	6.50	107	95	109	131	197

have been under increased pressure to make better terms. On the other hand, borrowers are always reluctant to concede higher rates on long loans; the prevalence of mild depression has kept the new demands for loans within moderate bounds; and the investing public has remained unorganized as formerly. The one great advantage which American bond-buyers have enjoyed is that since 1909 European business has been much more active than American business, so that foreign investors have had tempting opportunities at home and have been unwilling to put their money into American securities except at high rates of interest. The rates finally attained in 1912 on the ten railway bonds included in the table are higher than the annual averages in any year since 1897. If we take the West Shore bonds, which have been less affected than any of the others by changes in the credit of the guaranteeing corporation, we find that the average yield for 1912 stands higher than at any time since 1890 with the sole exception of the panic year 1893. Thus bond-holders are beginning to come into their own again; but they must secure still further concessions if they are to offset in full the advance in cost of living.

Short-time interest rates have been rather moderate in New York ever since the active days of 1906–7. Most of the time they have stood below their averages for the decades 1890–99 and 1900–1909. But on the whole they have ruled somewhat higher than in the depression of the middle nineties. For European prosperity has exercised much the same influence in the discount as in the bond market. New York banks have made large loans in Berlin and other foreign markets, and this European demand for American funds has moderated somewhat the decline in domestic discount rates.

IV. THE INDEX NUMBER OF BONDS

Readers of the article published in April, 1911, may remember that the relative prices of bonds in these tables are computed by dividing the yield at any given time into the average actual yield in 1890–99. Hence the index number of bond prices which follows presents merely a new series of deductions from the data in Tables V and VI.

TABLE VII

AVERAGE RELATIVE PRICES OF TEN RAILWAY BONDS BY YEARS, 1910–12
COMPUTED ON THE BASIS OF AVERAGE ACTUAL YIELDS IN 1890–99
(Continues table on p. 292, *Journal of Political Economy*, XIX)

	1909	1910	1911	1912
Chicago & Eastern Illinois	121.0	115.7	115.1	112.8
Missouri, Kansas & Texas	122.4	120.3	119.1	116.3
Wabash	112.5	107.9	106.0	104.2
Chesapeake & Ohio	113.8	110.6	110.3	108.0
Chicago, St. Paul, Minneapolis & Omaha	116.6	111.2	111.5	108.8
Chicago, Burlington & Quincy	115.1	111.1	110.3	108.4
Central Railroad of New Jersey	114.5	110.8	109.7	108.1
Chicago, Milwaukee, & St. Paul	110.0	105.7	105.2	104.4
New York, Chicago & St. Louis	102.5	99.9	100.2	99.9
West Shore Railroad	98.4	96.9	96.4	95.2
First five	117.3	113.1	112.4	110.0
Second five	108.1	104.8	104.4	103.2
All	112.7	109.0	108.4	106.6

Every bond in the list fell in price between 1909 and 1912, though the fall was rather less among the stronger than among the weaker issues. The heaviest fall occurred between 1909 and 1910, or more accurately between May, 1909, and July, 1910. After the latter date prices rose a little; but in March, 1912, they started on another decline which lasted until October and brought the lowest level touched since the panic of 1907.

Into the comparison between bond and stock prices a new column has been introduced. It gives the relative prices of those ten out of the fifty stocks dealt with which have paid dividends in every year since 1890.[1] Although seven out of the ten are common stocks, this dividend-paying group has been steadier in price than the ten preferred stocks. Since the dividend-paying stocks are real competitors with bonds for the patronage of investors, it is not surprising to find their movements synchronizing roughly with the fluctuations of bonds—albeit the oscillations are much

[1] The common stocks of the Central Railroad of New Jersey, Chicago & Northwestern, Delaware & Hudson, Illinois Central, New York Central, New York, New Haven & Hartford, and the American Express Co., together with the preferred stocks of the Chicago, Milwaukee & St. Paul, Chicago & Northwestern, and Cleveland, Cincinnati, Chicago, & St. Louis.

TABLE VIII

RELATIVE PRICES OF BONDS AND STOCKS BY YEARS, QUARTERS, AND MONTHS, 1910–12

(Continues tables on pp. 292 and 295, *Journal of Political Economy*, XIX)

YEARS	RELATIVE PRICES OF BONDS COMPUTED ON BASIS OF AVERAGE ACTUAL YIELDS IN 1890–99		RELATIVE PRICES OF STOCKS COMPUTED ON BASIS OF AVERAGE ACTUAL PRICES IN 1890–99 = 100			
	West Shore R.R.	Average of 10 Railway Bonds	Average of 10 Dividend-Paying Stocks	Average of 10 Preferred Stocks	Average of 10 Common Stocks	Average of 40 Common Stocks
1909	98	113	150	169	280	277
1910	97	109	142	148	248	254
1911	96	108	137	138	233	248
1912	95	107	141	123	215	243
QUARTERS						
1910—1st	97	111	150	162	275	274
2d	96	109	142	152	255	258
3d	97	108	135	137	225	235
4th	97	109	139	142	236	252
1911—1st	97	109	139	143	240	253
2d	96	109	139	142	240	256
3d	96	108	134	136	229	246
4th	96	108	136	130	223	241
1912—1st	96	108	142	125	211	238
2d	96	107	144	124	218	246
3d	95	106	142	121	216	245
4th	94	105	138	120	214	241
MONTHS						
1910—Jan	97.1	111.1	154.6	167.7	284.3	280.0
Feb	97.1	110.8	148.1	156.2	262.8	263.5
Mar	96.4	110.0	148.8	160.8	278.2	278.5
April	96.2	109.2	146.1	156.6	266.5	265.5
May	95.9	108.4	142.0	154.0	260.0	262.0
June	96.9	107.9	137.8	146.0	237.8	249.0
July	96.2	107.4	134.4	136.8	217.4	232.5
Aug	96.6	107.6	135.4	138.9	227.4	239.0
Sept	96.9	109.2	136.2	150.5	229.7	238.5
Oct	96.9	109.5	140.9	145.5	242.9	256.5
Nov	96.6	108.9	139.6	120.4	238.5	254.5
Dec	96.6	108.7	135.9	140.7	242.6	249.0

TABLE VIII.—*Concluded*

Months	Relative Prices of Bonds Computed on Basis of Average Actual Yields in 1890–99		Relative Prices of Stocks Computed on Basis of Average Actual Prices in 1890–99 = 100			
	West Shore R.R.	Average of 10 Railway Bonds	Average of 10 Dividend-Paying Stocks	Average of 10 Preferred Stocks	Average of 10 Common Stocks	Average of 40 Common Stocks
1911—Jan.	96.9	109.1	137.8	141.2	254.3	254.0
Feb.	96.4	109.0	140.4	156.5	243.6	258.5
March	96.4	108.5	137.6	153.2	255.9	258.0
April	96.2	108.6	137.6	158.3	234.7	254.5
May	96.6	108.9	138.5	145.8	238.7	256.0
June	96.6	108.9	139.8	144.9	248.0	265.0
July	96.6	108.8	138.6	142.0	244.5	260.0
Aug.	95.9	108.7	134.6	136.6	227.4	247.0
Sept.	95.7	108.2	129.6	132.3	215.8	233.0
Oct.	95.9	107.5	133.1	134.5	222.4	239.0
Nov.	96.2	108.0	137.3	120.7	229.2	245.5
Dec.	96.6	110.1	137.2	126.0	233.1	246.0
1912—Jan.	96.2	108.1	138.6	125.3	211.2	237.0
Feb.	96.2	108.3	143.2	123.8	208.4	235.5
March	95.9	108.0	142.8	125.1	213.3	242.0
April	96.2	107.8	145.2	128.2	224.0	250.0
May	95.9	107.6	143.4	123.9	217.7	247.0
June	95.7	106.9	143.1	120.8	212.3	242.0
July	95.4	106.6	142.0	119.7	211.5	240.0
Aug.	95.2	106.6	142.2	121.5	217.4	246.5
Sept.	95.0	105.5	142.1	123.1	218.9	248.0
Oct.	94.3	104.9	140.3	123.0	217.3	246.0
Nov.	94.0	105.1	138.9	121.9	216.5	242.5
Dec.	93.3	105.0	135.1	116.7	207.0	234.0

wider. The chief difference to be noted is that these stocks rose a trifle in 1912, while bonds continued to fall.

V. CONSPECTUS OF SECURITY PRICES AND INTEREST RATES BY YEARS, 1890–1912

It is convenient to have the general results of these investigations assembled in a single place. The security prices and interest rates are therefore given for the whole period 1890–1912 in four tables, of which two show averages by years, and two by phases of business cycles. In studying the latter tables it is important to remember that comparisons of successive averages sometimes give a wrong impression. For example, a long period of depres-

sion in which stock prices decline from a high to a low level may well have a higher average than the succeeding period of revival, in which prices are rising gradually from the low point attained

TABLE IX

RELATIVE PRICES OF BONDS, STOCKS, AND COMMODITIES. BY YEARS, 1890–1912
ARITHMETIC MEANS. AVERAGE ACTUAL PRICES IN 1890–99 = 100

YEAR	BONDS			STOCKS				COMMODITIES
	United States 4's of 1907 and 1925	West Shore R.R.	Average of 10 Railway Bonds	10 Dividend-Paying Stocks	Preferred Stocks in 10 Railways	Common Stocks in 10 Railways	Common Stocks in 40 Transportation Companies	145 Staples
1890.....	114	99	96	104	108	113	121	114
1891.....	104	97	93	100	104	113	113	113
1892.....	99	98	97	105	115	124	123	106
1893.....	91	95	95	96	87	89	93	105
1894.....	99	99	98	94	82	82	82	96
1895.....	96	100	101	95	87	87	85	93
1896.....	88	99	100	92	85	81	77	89
1897.....	101	103	103	94	94	90	84	89
1898.....	103	104	107	102	107	97	94	93
1899.....	112	107	114	118	130	126	128	103
1900.....	127	107	115	121	133	144	134	111
1901.....	140	108	119	142	178	262	211	110
1902.....	140	108	120	157	191	305	250	114
1903.....	139	103	114	136	163	238	201	114
1904.....	132	103	115	136	156	215	192	114
1905.....	138	103	118	158	181	278	250	116
1906.....	135	101	114	159	180	291	267	122
1907.....	127	96	107	129	138	206	204	130
1908.....	113	97	108	126	130	195	201	121
1909.....	110	98	113	150	169	280	277	124
1910.....	101*	97	109	142	148	248	254	131
1911.....	103*	96	108	137	138	233	248	128†
1912.....	114*	95	107	141	123	215	243	...
Averages								
1890–99..	100	100	100	100	100	100	100	100
1900–09..	130	102	114	141	162	241	219	118

*Computed from yields in January, April, July, and October, as given in the *Report of the Comptroller of the Currency.*

†Estimated.

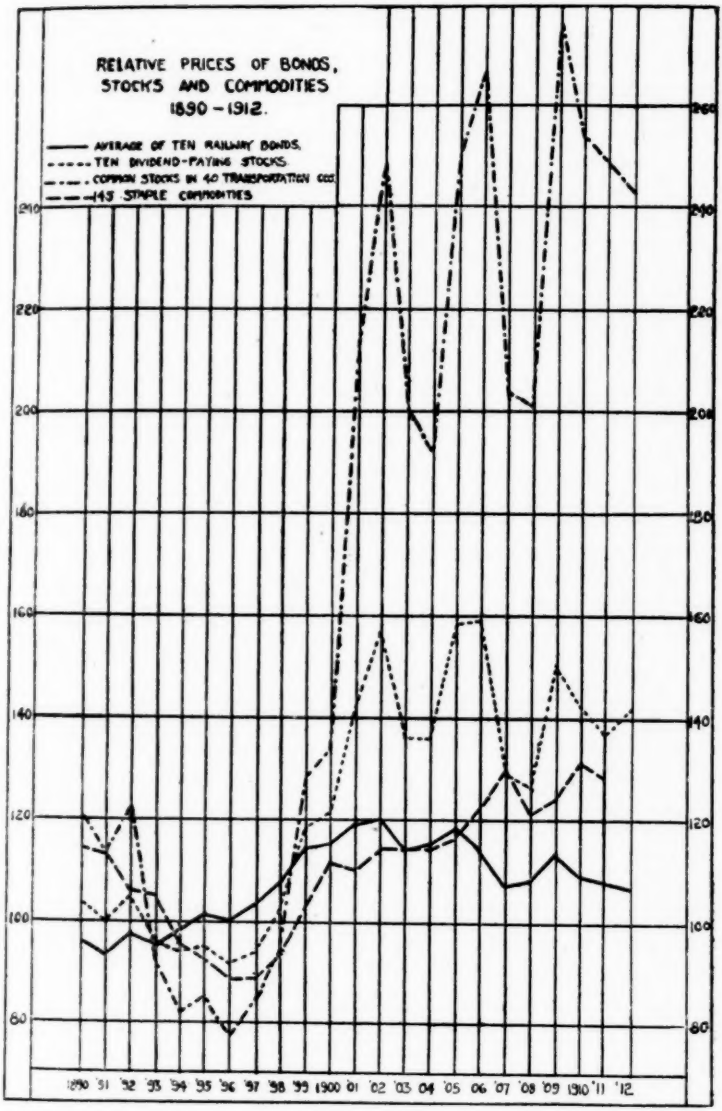
at the end of depression. Such misleading appearances can be easily detected by turning to the monthly tables.

The general trend of commodity and security prices can be seen most easily in the two charts which follow Table X.

TABLE X

RELATIVE PRICES OF BONDS AND STOCKS IN SEASONS OF BUSINESS PROSPERITY, CRISIS, AND DEPRESSION, 1890–1912

	Bonds		Stocks		
	W.S. R.R.	Av. of 10 Railroad Bonds	Av. of 10 Preferred Stocks	Av. of 10 Common Stocks	Av. of 40 Common Stocks
January, 1890—July, 1890—Prosperity	100	97	113	123	131
August, 1890—December, 1890—Minor crisis	97	94	103	108	115
January, 1891—July, 1891—Depression	97	93	100	103	107
August, 1891—August, 1892—Prosperity	98	96	115	127	123
September, 1892—October, 1893—Approach of crisis	97	97	106	112	116
May, 1893—October, 1893—Major crisis	94	93	78	80	84
November, 1893—March, 1895—Severe depression	99	98	81	82	81
April, 1895—September, 1895—Revival	100	102	93	94	91
October, 1895—June, 1896—Renewed depression	100	101	88	84	82
July, 1896—October, 1896—Free-silver campaign	98	97	79	74	71
November, 1896–June, 1897—Depression	102	102	86	83	77
July, 1897—February, 1898—Revival	104	105	103	98	93
March, 1898—April, 1898—Spanish war impending	101	104	98	85	87
May, 1898—September, 1899—Prosperity	106	111	121	113	113
October, 1899—December, 1899—Minor crisis	107	113	132	127	133
January, 1900—September, 1900—Slight depression	107	114	131	138	130
October, 1900—October, 1902—Prosperity	108	119	180	269	219
November, 1902—July, 1904—"Rich man's panic"	103	114	162	228	195
August, 1904—August, 1905—Revival	103	118	177	263	232
September, 1905—September, 1906—Prosperity	102	116	182	290	265
October, 1906—September, 1907—Approach of crisis	98	110	157	242	231
October, 1907—December, 1907—Major crisis	93	101	122	161	166
January, 1908—September, 1908—Severe depression	97	107	124	184	190
October, 1908—December, 1909—Revival	98	112	166	272	269
January, 1910—December, 1911—Reaction	97	109	143	241	251
January, 1912—December, 1912—Revival	95	107	123	215	243


RELATIVE PRICES OF BONDS, STOCKS AND COMMODITIES 1890 – 1912.
AVERAGE OF TEN RAILWAY BONDS.
TEN DIVIDEND-PAYING STOCKS.
COMMON STOCKS IN 40 TRANSPORTATION COS.
43 STAPLE COMMODITIES
240
220
200
180
160
140
120
100
80
1890 91 92 93 94 95 96 97 98 99 1900 01 02 03 04 05 06 07 08 09 1910 11 12

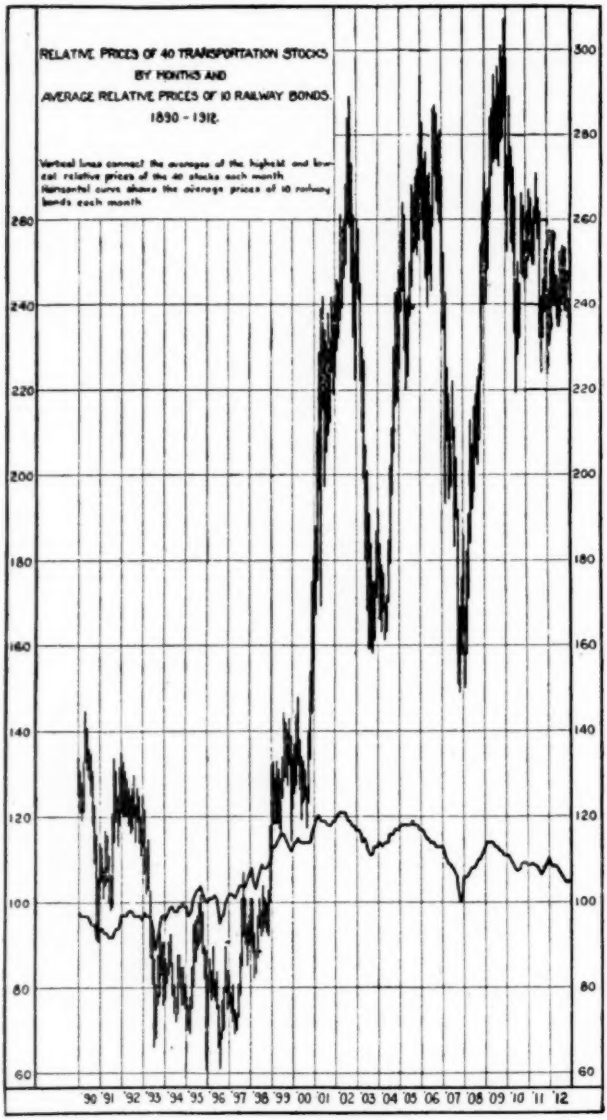

RELATIVE PRICES OF 40 TRANSPORTATION STOCKS
BY MONTHS AND
AVERAGE RELATIVE PRICES OF 10 RAILWAY BONDS.
1890 - 1912.
Vertical lines connect the averages of the highest and lowest relative prices of the 40 stocks each month
Horizontal curve shows the average prices of 10 railway bonds each month
300
280
260
240
220
200
180
160
140
120
100
80
60
90 '91 '92 '93 '94 '95 '96 '97 '98 '99 00 01 '02 03 04 05 06 '07 08 09 10 11 '12

TABLE XI

ACTUAL AND RELATIVE RATES OF INTEREST ON BONDS, COMMERCIAL PAPER, AND CALL LOANS IN NEW YORK BY YEARS, 1890–1912

YEAR	ACTUAL RATES OF INTEREST						RELATIVE RATES OF INTEREST. AVERAGE ACTUAL RATES 1890–99 = 100					
	Bonds			Commercial Paper		Call Loans at Stock Exchange	Bonds			Commercial Paper		Call Loans at Stock Exchange
	U.S. 4's of 1907 and 1925	West Shore R.R.	Av. of 10 Railroad Bonds	4–6 Months	60–90 Days		U.S. 4's of 1907 and 1925	West Shore R.R.	Av. of 10 Railroad Bonds	4–6 Months	60–90 Days	
1890.....	2.43%	3.88%	4.72%	6.89%	5.64%	5.81%	88	101	105	115	123	176
1891.....	2.65	3.96	4.85	6.50	5.41	3.42	96	103	107	109	118	104
1892.....	2.80	3.90	4.64	5.38	4.04	3.03	101	102	103	90	88	92
1893.....	3.04	4.02	4.75	7.62	6.86	4.58	110	105	105	127	150	139
1894.....	2.79	3.87	4.59	5.22	3.04	1.06	101	101	102	87	66	32
1895.....	2.89	3.82	4.48	5.73	3.64	1.85	105	100	99	96	79	56
1896.....	3.14	3.85	4.54	7.02	5.76	4.21	114	101	100	117	126	128
1897.....	2.73	3.72	4.38	4.72	3.57	1.77	99	97	97	79	78	54
1898.....	2.69	3.69	4.21	5.31	3.82	2.16	97	96	93	89	83	66
1899.....	2.47	3.56	3.96	5.48	4.05	5.04	89	93	88	92	88	153
1900.....	2.18	3.57	3.95	5.71	4.38	2.93	79	93	88	95	96	89
1901.....	1.97	3.54	3.79	5.41	4.24	3.98	71	93	85	90	93	121
1902.....	1.98	3.55	3.77	5.75	4.88	5.22	72	93	84	96	106	159
1903.....	1.99	3.70	3.96	6.21	5.43	3.79	72	97	88	104	118	115
1904.....	2.09	3.72	3.92	5.13	4.24	1.78	76	97	87	86	93	54
1905.....	2.00	3.70	3.82	5.17	4.35	4.39	73	97	85	86	95	133
1906.....	2.04	3.80	3.94	6.24	5.68	6.44	74	99	88	104	124	196
1907.....	2.18	3.97	4.22	6.55	6.27	7.27	79	104	94	109	137	221
1908.....	2.44	3.95	4.16	4.95	4.42	1.97	88	103	93	83	96	60
1909.....	2.52	3.89	4.00	4.67	3.86	2.70	91	102	89	78	84	82
1910.....	2.74*	3.96	4.14	5.72	5.01	2.97	99*	103	92	96	109	90
1911.....	2.68*	3.97	4.16	4.71	4.02	2.57	97*	104	93	79	88	78
1912.....	2.43*	4.02	4.23	5.41	4.74	3.52	88*	105	94	90	103	107
Averages												
1890–99	2.76	3.83	4.51	5.99	4.58	3.29	100	100	100	100	100	100
1900–09	2.14	3.74	3.95	5.61	4.78	4.05	77	98	88	93	104	123

*Computed from average yields for January, April, July, and October as given by the *Reports of the Comptroller of Currency*.

TABLE XII

RATES OF INTEREST YIELDED BY INVESTMENTS IN BONDS AND BY SHORT-TIME LOANS IN SEASONS OF BUSINESS PROSPERITY, CRISIS, AND DEPRESSION, 1890–1912

	Actual Rates of Interest					Relative Rates of Interest Average Actual Rates 1890–99 = 100				
	Bonds		Commercial Paper		Call Loans at Stock Exchange	Bonds		Commercial Paper		Call Loans at Stock Exchange
	West Shore R.R.	Av. of 10 Railroad Bonds	4–6 Months	60–90 Days		West Shore R.R.	Av. of 10 Railroad Bonds	4–6 Months	60–90 Days	
Jan., 1890—July, 1890—Prosperity	3.83%	4.65%	6.41%	5.17%	4.96%	100	103	107	113	151
Aug., 1890—Dec., 1890—Minor crisis	3.94	4.82	7.60	6.56	7.08	103	107	127	143	215
Jan., 1891—July, 1891—Depression	3.96	4.87	6.57	5.38	3.26	103	108	110	117	99
Aug., 1891—Aug., 1892—Prosperity	3.92	4.70	5.51	4.30	2.57	102	104	92	94	78
Sept., 1892—Apr., 1893—Approach of crisis	3.94	4.65	6.24	5.38	5.23	103	103	104	117	159
May, 1893—Oct., 1893—Major crisis	4.09	4.86	9.23	8.19	5.31	107	108	154	179	161
Nov., 1893—Mar., 1895—Severe depression	3.87	4.60	5.48	3.25	1.22	101	102	92	71	37
Apr., 1895—Sept., 1895—Revival	3.81	4.43	5.29	3.31	1.45	100	98	88	72	44
Oct., 1895—June, 1896—Renewed depression	3.81	4.45	6.59	4.94	3.17	100	99	110	108	96
July, 1896—Oct., 1896—Free-silver campaign	3.92	4.67	8.10	7.47	5.84	102	104	135	163	177
Nov., 1896—June, 1897—Depression	3.77	4.44	4.83	3.62	2.17	99	98	81	79	66
July, 1897—Feb., 1898—Revival	3.69	4.29	4.81	3.61	2.02	96	95	80	79	61
Mar., 1898—Apr., 1898—Spanish war impending	3.78	4.35	6.84	5.22	2.57	99	96	114	114	78
May, 1898—Sept., 1899—Prosperity	3.61	4.05	5.12	3.65	3.02	94	90	86	80	92
Oct., 1899—Dec., 1899—Minor crisis	3.59	4.00	6.73	5.45	8.74	94	89	112	119	265
Jan., 1900—Sept., 1900—Slight depression	3.57	3.96	5.68	4.27	2.39	93	88	95	93	73
Oct., 1900—Oct., 1902—Prosperity	3.54	3.79	5.56	4.52	4.47	93	84	93	99	136
Nov., 1902—July, 1904—"Rich man's panic"	3.70	3.95	5.82	5.09	3.20	97	88	97	111	97
Aug., 1904—Aug., 1905—Revival	3.70	3.84	4.93	4.06	2.35	97	85	82	89	71
Sept., 1905—Sept., 1906—Prosperity	3.76	3.90	6.06	5.42	6.53	98	86	101	118	198
Oct., 1906—Sept., 1907—Approach of crisis	3.90	4.10	6.57	6.06	5.25	102	91	110	132	159
Oct., 1907—Dec., 1907—Major crisis	4.13	4.45	7.33*	7.50	15.95	108	99	122*	164	484
Jan., 1908—Sept., 1908—Severe depression	3.96	4.20	5.05	4.50	1.88	103	93	84	98	57
Oct., 1908—Dec., 1909—Revival	3.90	4.01	4.61	3.99	2.57	102	89	77	87	78
Jan., 1910—Dec., 1911—Reaction	3.97	4.15	5.23	4.52	2.77	104	92	87	99	84
Jan., 1912—Dec., 1912—Revival	4.02	4.23	5.41	4.74	3.52	105	94	90	103	107

*Nominal.

CERTAIN CHANGES IN NEW YORK'S POSITION AS A FINANCIAL CENTER

During the last year much attention has been given to the dominant position of New York City in our banking system. The extent of the control exercised by New York has been and is so great that several important changes that are taking place have escaped general notice.

That the position of New York City as a banking center has undergone a change in the last few years is shown by the facts: (1) that a smaller amount of cash is being withdrawn from there each fall for crop-moving purposes; (2) that a relatively smaller amount of cash is held by the New York banks than in former years; (3) that New York holds relatively less of the reserve funds of the entire country than in the past; (4) that the total banking resources of New York have been growing less rapidly than those of other parts of the country; and (5) that strong banking centers are rapidly being developed in other sections. The rest of the United States is apparently becoming more and more independent of New York for cash and for the financing of relatively small enterprises. With the financing of large ventures and with the general question of extension of credit this paper does not deal.

That the fall movement of cash out of New York is less than in former years is a fact which few people seem to have noticed. Probably very few indeed are aware that the net movement during the fall months is now in the other direction. Several years ago this movement was carefully analyzed, for the years 1899–1908 inclusive, by Professor E. W. Kemmerer in his report to the National Monetary Commission.[1] He averaged the movement for this period and found a definite flow of money out from New York each fall—a movement averaging $3,434,000 in the thirty-eighth week of the year (the latter part of September) when it was at its maximum. The maximum movement into New York he found to be $6,895,000 and to occur in the latter part of January.

[1] *Seasonal Variations in the Relative Demand for Money*, etc., pp. 124–29.

Since these statistics were prepared, an important change has occurred. Professor Kemmerer relied upon two sources of information: (1) special reports for 1905–8 from the New York clearing-house banks to the Monetary Commission, and (2) the weekly figures from these same banks for the net interior movement of cash into and out of the banks during the ten years 1899–1908. In this paper, of course, only the latter source of information is available, and all statistics of cash movements have been compiled from the weekly statements in the *Commercial and Financial Chronicle*. All

TABLE I

NET MOVEMENT OF CASH BETWEEN NEW YORK CLEARING-HOUSE BANKS AND THE INTERIOR (000 OMITTED)

(The sign + indicates movement to New York)

YEAR	MONTHS					TOTAL FOR FIVE MONTHS
	August	September	October	November	December	
1899	$+ 3,984	$−18,884	$− 9,211	$− 3,311	$+ 3,806	$− 23,616
1900	+ 8,478	−15,657	−22,495	+ 3,148	− 69	− 26,595
1901	− 755	−12,940	−13,597	+12,592	+ 1,409	− 13,291
1902	+ 3,173	− 9,077	− 6,973	+ 71	+ 2,413	− 10,393
1903	+15,733	− 5,491	−18,948	−13,584	+ 6,615	− 15,675
1904	+ 3,228	−12,994	− 7,676	+ 4,975	+14,925	+ 2,458
1905	+ 326	−19,906	− 4,585	− 4,993	+ 2,762	− 26,396
1906	− 4,470	−19,966	−24,605	+ 138	+ 5,131	− 43,772
1907	+ 115	− 6,582	−29,525	−84,953	−23,193	−144,138
1908	+23,149	− 2,675	+ 56	+ 1,114	+13,656	+ 35,300
1909	+ 9,430	− 4,687	− 3,200	+ 2,850	+23,663	+ 28,056
1910	+19,317	− 3,120	− 2,836	+ 8,674	+ 9,042	+ 31,077
1911	+27,676	+ 8,353	+ 5,958	+16,891	+45,012	+103,890
1912	+22,343	+ 6,357	+ 6,734	+ 8,707	+23,570	+ 67,711

statements of interior movements as reported in this publication include telegraphic transfers by the New York Subtreasury.

An examination of this interior movement as presented in Table I shows that a very pronounced change has taken place since 1907. Before that date the movement during the fall months, August–December inclusive, was out of the city. The figures given begin with 1899 (Professor Kemmerer's starting-point) and are continued through 1912—a total of fourteen years.[1] Prior to 1908 New York

[1] The *Chronicle* is published each week on Saturday, and it is impossible to follow closely the limits of each calendar month. Instead, the dates on which the paper appeared have been used as the basis. Thus if an issue of the *Chronicle* was dated

was the loser in every year except 1904, when her gain was slight; but even in that year there was a heavy net loss in September and October. The heaviest total loss appeared in 1907 because of the large withdrawals during the panic. With 1908 came a change. Since that time New York has gained rather than lost during the fall months. In 1908 only September shows a loss, and in 1909 and 1910 only September and October; while for 1911 and 1912 every month shows a gain for New York. In 1911 the total gain for the period was $103,890,000, and in 1912 it was $67,711,000. In 1911 there were net losses in only three weeks—those of September 9, October 7, and October 14. In 1912 there were likewise only three weeks of net loss—$1,855,000 for September 14, $423,000 for October 26, and $837,000 for November 30.

It may be urged that the dulness of business since the panic of 1907 is the explanation. But whatever may be said of other years, 1912 was a year of bumper crops, expanding business, and general prosperity; and in September of that year the gain for New York was the largest for any September during the years under review with the exception of 1911. In October, 1912, the gain was the heaviest for any October of the period. Evidently some other change has occurred. It is not true that the out-of-town banks are no longer sending their money to New York. Table II gives, in column II, the net interior movement for the entire year and shows clearly that, in absolute amount, New York is gaining more than ever. Prior to 1908, every year except 1906 and 1907 shows a gain; but beginning with 1908 and continuing through 1912 this gain has been much larger than before, reaching a maximum of $325,158,000 in 1912. Prior to 1907, New York's greatest gain was $134,940,000 in 1904, but since that date the gain has never been less than $213,591,000. It is clear that the out-of-town banks are sending their money to New York in larger absolute quantities than ever before.

January 1, the movement recorded for the week has been credited to January instead of to December. This is arbitrary but in no way affects the general conclusions presented. It has been adopted because of the difficulty of assigning the proper amount to each month when a week is divided between two months. Net monthly results have been secured by first combining the net weekly movements as given and then combining these monthly figures to secure the totals for each year.

The reason for this movement of cash into New York is generally understood to be the offer of interest by the New York banks for out-of-town deposits. The legal requirements as to reserves must be met by outside banks, but cash held in their vaults is earning nothing. Since a part of the reserve may be transferred to approved agents in reserve cities where it will receive 2 per cent, the natural thing is for the out-of-town banks thus to deposit it. The change in the direction of the fall movement seems to be explained by the increasing tendency on the part of these out-of-town banks to lend their money directly on the New York market. It is currently reported that high money rates in 1905 and 1906 led the banks to begin the practice. Their New York reserve agents hesitated to perform the service but were forced into it by the trust companies who offered to do it free of charge if the national banks would not.

The statistics prepared for the Congressional committee investigating the alleged "Money Trust" show an increase in the practice as follows:[1]

LOANS BY SUNDRY NEW YORK FINANCIAL INSTITUTIONS FOR THEIR CORRESPONDENTS

	January	July	November
1908	$106,621,000	$ 89,248,000	$ 85,011,000
1909	103,524,000	121,648,000	168,557,000
1910	208,260,000	160,185,000	125,201,000
1911	143,876,000	128,804,000	148,820,000
1912	140,901,000	141,028,000	240,480,000

The tables prepared for the committee show a slight increase in the amount loaned on stock-exchange collateral by the New York banks for themselves, but a very much larger increase in the amount loaned by them for their correspondents. They also show that although these correspondents are lending more at all times of the year than formerly, the amount so loaned in the fall has grown much more rapidly than the amount at other seasons. On November 1, 1912, the total was nearly three times that on November 1, 1908.

[1] *Money Trust Investigation*, p. 1193. The loans as given are those "outstanding on or about January 1, July 1, and November 1 in each of the years 1908 to 1912, inclusive."

The opportunity to lend these large sums at the high rates current each fall for demand loans goes far to explain the reason why there is now a movement of cash into, rather than out of, New York during the fall months. The out-of-town banks no longer content themselves with the 2 per cent allowed them by their reserve agents. If they have any surplus funds over and above their required reserves, a direct loan will yield perhaps 4, 6, or 8 per cent, or even more. The inducement to use funds in this manner is very strong. Money so used does not, of course, count as a part of reserves as it would if left on deposit with the reserve agent, but any excess above the amount needed for reserve purposes may be thus loaned. The lending bank may and in some cases does pass upon the collateral given as security, but often, especially if the lending bank is small, all is left to the discretion of the New York agent, and the out-of-town bank is merely sent later, for approval, a list of the securities held. Thus any surplus above reserve requirements may be employed to advantage and anything that may be spared from local needs may also be sent on for a similar use. When the out-of-town bank finds it necessary to build up its reserves these loans may be called, the New York bank still acting as agent in the transaction. The money thus secured may be left on deposit in New York and counted as a part of reserves or, if necessary, the cash may be withdrawn from the city.

There is another change that aids in explaining the lessened autumnal demand on New York. Checks are being used to an increasing extent in rural communities. Just how much of a change has occurred it is impossible to determine, but numerous inquiries addressed to western bankers have found them agreed that there is a constantly decreasing demand for cash for local needs. Farmers and merchants ask for less actual money and prefer accounts against which checks may be drawn. Even if this practice should greatly increase, the demand for cash would not be entirely eliminated but merely lessened. It would still be necessary to withdraw cash from New York and other centers to build up local reserves, but the amount needed would not be nearly so great as before.

That the continual flow of money into New York does not result in a large accumulation of cash in that city is explained by the losses

to the Subtreasury and through gold exports. An examination of Table II (in which the net interior movement is given in columns I and II, the Subtreasury and import and export movement in columns III and IV, with a combination of both in columns V and VI) shows that the net result is no great gain in cash for the New York banks for the entire year, and only a relatively slight loss during the fall months.

TABLE II

NET CASH MOVEMENTS INTO (+) AND OUT OF (−) NEW YORK CITY CLEARING-HOUSE BANKS (000 OMITTED)

YEAR	INTERIOR MOVEMENT		SUBTREASURY AND GOLD IMPORTS AND EXPORTS		TOTAL NET MOVEMENT	
	I Aug.–Dec.	II Entire Year	III Aug.–Dec.	IV Entire Year	V Aug.–Dec.	VI Entire Year
1899	$− 23,616	$+ 37,116	$− 18,715	$− 58,859	$− 42,331	$− 21,743
1900	− 26,595	+ 52,563	− 117	− 21,732	− 26,712	+ 30,831
1901	− 13,291	+ 77,569	− 18,050	− 66,422	− 31,341	+ 11,147
1902	− 10,393	+ 50,067	− 23,144	− 54,675	− 33,537	− 4,608
1903	− 15,675	+ 87,954	+ 251	− 55,242	− 15,424	+ 32,712
1904	+ 2,458	+134,940	− 45,258	− 56,608	− 42,800	+ 78,332
1905	− 26,396	+ 71,862	− 30,305	−105,019	− 56,791	− 33,157
1906	− 43,772	− 36,143	+ 11,337	+ 75,621	− 32,435	+ 39,478
1907	−144,138	− 92,255	+134,211	+135,765	− 9,927	+ 43,510
1908	+ 35,300	+264,100	− 35,757	− 48,653	− 457	+215,447
1909	+ 28,056	+223,553	− 71,735	−147,297	− 43,679	+ 76,256
1910	+ 31,077	+213,591	− 50,368	−122,666	− 19,291	+ 90,925
1911	+103,890	+302,377	−103,858	−193,364	+ 32	+109,013
1912	+ 67,711	+325,158	−103,616	−277,666	− 35,905	+ 47,492

The interesting change has come since 1907. Since that date each autumn shows a Subtreasury and export loss greater than in any year up to 1907, except that the loss of $45,258,000 in 1904 exceeded that of $35,757,000 in 1908. For the entire year a similar change has been taking place. A combination of these two movements in columns V and VI shows no change of any significance. New York has been the gainer in eleven of the fourteen years, although a loser in the fall months during every year but one. The total net movement shows no important change except in 1908.

All the facts thus far presented lead to no conclusion relative to a change in New York's position except that there has not been for several years past a net loss to New York for crop-moving purposes.

Instead, New York gains from the interior during this period, but has lost through the Subtreasury and gold exports an amount sufficient to offset these gains.

Professor A. P. Andrew, in a letter appearing in the *New York Evening Post* of January 8, 1913, contends that New York lends large sums to the interior each autumn and that if these "loans to correspondents" were included "it would doubtless be evident that any apparent increase in the net balance of out-of-town money in New York about November 1 of the present year was more than offset by an increase in loans made by the New York banks to their

TABLE III

AMOUNT AND NATURE OF RESERVE HELD BY NATIONAL BANKS ON OR ABOUT OCTOBER 1 OF EACH YEAR (00,000 OMITTED)

YEAR	RESERVE CITIES (EXCEPT CENTRAL RESERVE CITIES)		LOCALITIES OTHER THAN RESERVE CITIES		ENTIRE UNITED STATES	
	Lawful Money	Due from Reserve Agents	Lawful Money	Due from Reserve Agents	Lawful Money	Due from Reserve Agents
1902.....	$128,2	$129,8	$144,9	$150,7	$523,8	$280,5
1903.....	139,2	122,1	162,6	155,8	572,9	277,9
1904.....	152,0	141,4	164,0	163,8	681,9	305,2
1905.....	166,1	156,6	178,7	181,9	688,9	338,4
1906.....	172,0	164,0	193,7	204,7	651,6	368,6
1907.....	196,6	165,7	216,8	226,7	729,0	392,4
1908.....	227,0	188,9	235,0	220,1	899,1	409,0
1909.....	232,9	207,9	240,4	241,5	886,6	449,5
1910.....	229,4	204,6	251,0	258,3	884,8	462,9
1911.....	246,6	224,4	256,6	273,8	929,8	498,2
1912.....	251,7	236,8	271,6	299,9	931,0	536,7

correspondents." However, he introduces no facts in support of this contention and it is difficult to see why the New York banks would send money out of the city in large quantities when interest rates are such as to bring such large sums into the city.

That New York holds relatively less cash than formerly is another change of importance. This is shown by Table III, which has been compiled from the reports of the Comptroller of the Currency, beginning with 1902, rather than with 1899 as do the previous tables, because a change at that date in the method of presenting the facts makes accurate comparisons with earlier years impossible. The table gives the reserve in millions of dollars held by the national

banks of the reserve cities, of localities other than reserve cities, and of the entire United States, respectively. The figures have been taken in every case from the report nearest to October 1. The reserve is given in its two parts: (1) lawful money held (including redemption fund at Washington), and (2) the amount with reserve agents. Table IV shows the amount in cash as compared with the amount with reserve agents in percentage form.

There has been no change of importance during the period in the practice of the banks as to the percentage of reserve held with reserve agents. The amount of cash held as compared with the

TABLE IV

PERCENTAGE OF LAWFUL MONEY AND OF DEPOSITS WITH RESERVE AGENTS IN THE RESERVES OF NATIONAL BANKS ON OR ABOUT OCTOBER 1 OF EACH YEAR

YEAR	RESERVE CITIES (EXCEPT CENTRAL RESERVE CITIES)		LOCALITIES OTHER THAN RESERVE CITIES		ENTIRE UNITED STATES	
	Lawful Money (Percentage)	With Reserve Agent (Percentage)	Lawful Money (Percentage)	With Reserve Agent (Percentage)	Lawful Money (Percentage)	With Reserve Agent (Percentage)
1902.....	49.6	50.3	49.0	50.9	65.1	34.8
1903.....	53.2	46.7	51.0	48.9	67.3	32.6
1904.....	51.8	48.1	50.0	49.9	69.0	30.9
1905.....	51.4	48.5	49.5	50.4	67.0	32.9
1906.....	51.1	48.8	48.6	51.3	63.8	36.1
1907.....	54.2	45.7	48.8	51.1	65.0	34.9
1908.....	54.5	45.4	51.6	48.3	68.7	31.2
1909.....	52.8	47.1	49.8	50.1	66.3	33.6
1910.....	52.8	47.1	49.2	50.7	65.6	34.3
1911.....	52.3	47.6	48.3	51.6	65.1	34.8
1912.....	51.5	48.4	47.5	52.4	63.4	36.5

amount of deposits with reserve agents is about the same in the later years as in the earlier. Such changes as have occurred since 1908 have been in the direction of a larger rather than a smaller percentage with reserve agents. Thus for the country as a whole this proportion has increased from 31 per cent to 36 per cent, for the country banks from 48 per cent to 52 per cent, and for the reserve city banks from 45 per cent to 48 per cent. In each case this is a return to conditions prior to 1907. Apparently the banks for a time hesitated to intrust a large proportion of their reserves to banks in other cities, but this hesitation has gradually disappeared until now

conditions similar to those which preceded the panic have returned. The national banks are still taking advantage of their legal right to leave a part of their reserves with approved reserve agents. They are not hoarding their cash in their own vaults.

But the New York national banks hold relatively less of this amount than formerly. Table V presents the same figures in a different manner. In this table the amounts of cash reserve held by the banks in 1902 are viewed as 100 and the amounts at later dates calculated as percentages of them. The results show that while the

TABLE V

LAWFUL MONEY RESERVE (INCLUDING REDEMPTION FUND) HELD BY NATIONAL BANKS ON OR ABOUT OCTOBER 1 OF EACH YEAR (00,000 OMITTED)

YEAR	NEW YORK		CHICAGO		ST. LOUIS		OTHER RESERVE CITIES		LOCALITIES OTHER THAN RESERVE CITIES		ENTIRE UNITED STATES	
	Amount	Percentage of 1902 Reserve	Amount	Percentage of 1902 Reserve	Amount	Percentage of 1902 Reserve	Amount	Percentage of 1902 Reserve	Amount	Percentage of 1902 Reserve	Amount	Percentage of 1902 Reserve
1902..	$186,1	100	$45,9	100	$18,7	100	$128,2	100	$144,9	100	$523,8	100
1903..	205,3	110	47,3	103	18,5	98	139,2	108	162,6	112	572,9	109
1904..	289,9	155	54,1	117	21,7	116	152,0	118	164,0	113	681,9	130
1905..	256,0	137	60,9	132	27,1	144	166,1	129	178,7	123	688,9	131
1906..	201,5	108	60,0	130	24,2	129	172,0	134	193,7	133	651,6	124
1907..	221,3	118	66,6	145	27,6	147	196,6	153	216,8	149	729,0	139
1908..	340,1	182	70,3	153	26,6	142	227,0	177	235,0	162	899,1	171
1909..	304,6	163	77,4	168	31,3	167	232,9	181	240,4	165	886,6	169
1910..	294,0	157	82,9	180	27,3	146	229,4	178	251,0	173	884,8	168
1911..	305,8	164	89,7	195	30,8	164	246,6	192	256,6	177	929,8	177
1912..	288,5	155	89,7	195	29,4	157	251,7	196	271,6	187	931,0	177

lawful money reserve held by the national banks of the entire country increased from 1902 to 1912 by 77 per cent, the amount held by the New York banks increased only 55 per cent. St. Louis increased 57 per cent, while Chicago increased 95 per cent or nearly doubled. The other reserve cities as a group gained 96 per cent, while the country banks increased 87 per cent. New York gained a little less than St. Louis, much less than Chicago, and also much less than the other banks of the country.

The same general situation may be made clear in another way. It has been shown above that the banks of the country are redeposit-

ing their reserves as much as ever. The New York banks, however, are receiving a much smaller part of these deposits than in earlier years The facts given in Table VI are the ones that show the change. These also are taken from the reports of the Comptroller of the Currency, the report selected for each year being the one nearest October 1, as in the three preceding tables. The first column gives the amount "Due from Reserve Agents" for the entire United States. As there is no such item for central reserve cities, New York City is in no way included. Column IV, "Due to National Banks," gives

TABLE VI

AMOUNTS DUE FROM NATIONAL BANKS (00,000 OMITTED)

Year	I Due from Reserve Agents (all National Banks)	II Due from National Banks Not Reserve Agents (all National Banks except New York)	III Total Due (Columns I and II Combined)	IV Due to National Banks (New York City only)	V Percentage Ratio of Column IV to Column I	VI Percentage Ratio of Column IV to Column III	VII Difference between Column IV and Column III	VIII Percentage Ratio of Column VII to Column III
1899...	$414,1	$184,2	$598,3	$252,7	61	42	$345,6	58
1900...	450,7	187,4	638,1	260,0	57	40	378,1	60
1901...	456,6	208,8	665,4	252,3	55	37	413,1	63
1902...	465,6	218,9	684,5	248,3	53	36	436,2	64
1903...	454,9	221,0	675,9	230,5	50	34	445,4	66
1904...	562,6	256,4	819,0	311,4	55	38	507,6	62
1905...	605,4	277,4	882,8	303,1	50	34	579,7	66
1906...	616,1	288,5	904,6	297,5	48	32	607,1	68
1907...	614,4	289,0	903,4	259,2	42	28	644,2	72
1908...	711,9	326,0	1,037,9	359,0	50	34	678,9	66
1909...	719,3	335,9	1,055,2	331,3	46	31	723,9	69
1910...	688,7	329,0	1,017,7	315,0	45	30	702,7	70
1911...	744,6	350,1	1,094,7	332,0	44	30	762,7	70
1912...	812,1	407,2	1,219,3	345,0	42	28	874,3	72

for New York City the item that indicates (not exactly but in a general way) the amount held by the New York banks as reserve agents for the banks in the interior. The growth in the amount left with reserve agents (column I) has been rapid, and, with the exception of 1903, 1907, and 1910, it has been steady. The amount held in New York (column IV) has also grown but with much less rapidity. A high point was reached in 1904, followed by a decline to $259,200,000 in 1907. In 1908 came a large increase soon followed by a drop to $315,000,000 in 1910. In 1912 the amount was only $345,000,000, much less than in 1908. The changes are best shown

in column V, which states the facts in percentage form. In 1899 New York owed the national banks of the country an amount equal to 61 per cent of the total amount due the national banks from reserve agents. This declined to 50 per cent in 1903, increased to 55 per cent in 1904, fell to 42 per cent in 1907, rose to 50 per cent in 1908, and has steadily declined ever since, until it was 42 per cent in 1912. A comparison with Table V shows a marked correspondence in the fluctuations in the amount of lawful money held by the New York banks and the amount due from them to other banks. New York banks held no more lawful money reserve in 1912 than in 1904 and owed only a little more to national banks. New York's cash holdings declined in 1906 and 1907 and increased in 1908. The same changes are shown in Table VI in the amount due to national banks. Since 1908 both items have declined. It is also to be observed that the decline in the percentages given in column V of Table VI has been almost constant.

Lest this should not seem to be an entirely fair statement of the case another item has been inserted in Table VI. Column II gives for all the national banks of the country (excluding New York) the item "Due from National Banks—Not Reserve Agents." This includes many exchange items which are purely temporary, but also includes many more permanent accounts. Column III combines columns I and II, while column VI compares this total with New York's item "Due to National Banks" in column IV. The same fluctuations and the same general decline are to be noticed. The 42 per cent of 1899 becomes 28 per cent in 1912, a drop of 14 per cent. Put in another way, the rest of the country has gained 14 per cent. Column VII gives the difference between columns IV and III, or, approximately, the amount held by the rest of the country.[1]

Nor have the total resources of the national banks of New York increased so rapidly as those in other parts of the country. This fact has been presented with great clearness and force by Professor A. P. Andrew,[2] and need only be summarized briefly here. Table

[1] Throughout the discussion of Tables V and VI, sight must not be lost of the duplications due to the practice of banks in Chicago and St. Louis sending their surplus funds to New York.

[2] See *New York Evening Post*, December 7 and 14, 1912, and January 8, 1913. These articles are reprinted in Senate Document 1003, 62d Congress, 3d session.

VII presents the percentage changes in number, capital, and resources of the United States national banks from June, 1900, to June, 1912, as given by him. It is evident that the banking strength of the South and West has been growing more rapidly than that of the East.

There remains for discussion the question of the present distribution of banking reserves. It seems clear that the country is less dependent on New York for cash than in former years; that a relatively smaller amount of cash and of "Due from Reserve Agents" is held by the New York banks than in former years; and that the total banking resources of New York have grown less rapidly than those of other parts of the country.

TABLE VII

PERCENTAGE CHANGES IN NUMBER, CAPITAL, AND TOTAL RESOURCES OF ALL REPORTING BANKS FROM JUNE, 1900, TO JUNE, 1912, BY GROUPS OF STATES

GROUPS OF STATES	PERCENTAGE CHANGE		
	Number of Banks	Capital	Total Resources
New England	−2.2	−8.8	61.6
Eastern States	62.7	71.0	103.6
Southern States	275.3	191.3	259.9
Middle Western States	124.6	108.4	175.1
Western States	203.5	174.4	227.2
Pacific States	252.8	192.7	240.8

Have other centers been developing? If so, the fact would be evidenced in each case by growth in total banking resources, in cash held, in "Due to Other Banks" and in the cash movements into and out of such centers. The last of these points would show the extent to which the autumnal strain has been shifted from New York to these other centers, but unfortunately no reliable statistics are available. Such as have been gathered are admittedly incomplete, and are for such a short period as to make satisfactory comparisons impossible.

Information on the other points is, however, more easily secured. Table VIII shows the growth in total resources, specie and legal

TABLE VIII

GROWTH IN STRENGTH OF THE NATIONAL BANKS OF CERTAIN CITIES FROM 1899 TO 1912 (000 OMITTED)

CITIES	TOTAL RESOURCES			SPECIE AND LEGAL TENDERS			DUE TO NATIONAL BANKS		
	1899	1912	Percentage Increase	1899	1912	Percentage Increase	1899	1912	Percentage Increase
New York City	$985,682	$1,762,727	78	$171,834	$286,157	66	$252,785	$345,018	36
San Francisco	34,138	240,847	605	6,585	16,628	152	1,609	22,215	1238
Washington, D.C.	24,750	50,484	103	2,911	3,161	8	363	2,822	682
Chicago	241,467	571,760	136	37,127	88,972	139	67,797	164,436	142
Indianapolis	23,686	62,872	165	2,703	4,607	70	4,094	8,845	116
Des Moines	8,217	23,717	188	545	1,896	247	1,630	4,931	202
New Orleans	24,598	46,652	89	2,089	2,742	31	1,542	4,043	162
Baltimore	71,340	114,007	59	4,557	5,759	26	10,286	17,378	60
Boston	302,910	357,580	18	24,629	29,354	19	51,808	37,744	26*
Detroit	29,165	65,094	123	2,458	6,803	176	2,951	5,514	86
Minneapolis	23,288	95,324	309	1,928	7,611	294	3,477	15,323	340
St. Paul	24,547	52,961	115	2,712	4,364	60	2,723	8,756	221
Kansas City	44,959	121,551	170	3,281	7,824	138	11,711	30,974	164
St. Joseph	5,761	19,623	240	503	1,436	185	1,021	3,612	253
St. Louis	90,575	213,752	135	10,814	28,623	164	20,334	58,364	187
Omaha	28,481	61,548	116	2,349	5,193	121	6,375	12,255	92
Albany	19,940	62,192	211	1,565	4,644	196	6,771	23,576	248
Portland, Ore.	10,354	39,941	285	1,086	4,436	308	1,300	4,669	259
Philadelphia	234,593	440,526	87	19,204	35,933	87	49,562	80,285	161
Pittsburgh	111,876	295,086	163	9,875	23,089	133	15,391	47,241	206
Houston	6,322	48,939	674	1,475	3,250	120	514	8,204	1496
Milwaukee	37,039	73,315	97	3,689	5,662	53	4,975	6,143	23
	1906								
Galveston†	3,392	7,940	134	293	923	215	831	1,256	50
Salt Lake City†	14,429	22,113	53	1,344	2,133	58	1,440	2,361	63
Seattle†	28,973	50,049	72	2,685	4,456	65	1,885	3,443	82

* Decrease.

† The reports of the Comptroller of the Currency do not give data for these three in 1899 as they became reserve cities at a later date.

tenders,[1] and "Due to National Banks" for the leading reserve centers of the country from 1899 to 1912. In this table the cities, except New York, are arranged in the alphabetical order of the states in which they are situated. New York City has gained in the three specified items 78 per cent, 66 per cent, and 36 per cent respectively. Compared with these gains, those of Chicago were 136 per cent, 139 per cent, and 142 per cent, and those of St. Louis were 135 per cent, 164 per cent, and 187 per cent.

A fair comparison must take into account both the rate of growth and the present actual amounts. Such a comparison reveals the gradual development of a number of financial centers in the interior. Whether in each of these cases the growth will continue is by no means certain, but the growth of the past is not open to question.

In Table IX are grouped by sections sixteen cities whose geographical location, recent growth, and present strength are indicative of their influence. In New England, Boston is the only city which can be looked to as leader. Although her amount of "Due to Other Banks" has declined by 26 per cent during the period, it is still large, and the amount of cash held and of total resources have increased. Aside from the need for a center at some point in New England it is probable that the Boston practice of collecting out-of-town items through the clearing-house has been, and will be, a very important factor.

In the Eastern States New York City is, of course, leader, with Philadelphia second. The size of Philadelphia and its prominence as a manufacturing center account in part for its financial importance, but some of its growth, as well as that of Albany, may be attributed to the New York practice of charging exchange on out-of-town items. The New York clearing-house banks divide the country into three sections. Localities in the first section are discretionary points on items from which exchange may or may not be charged. All items from a second section farther distant must, according to the rules, be charged at least one-tenth of 1 per cent, while items from more distant points must be charged at least one-

[1] The item "Specie and Legal Tenders" is not the same as "Lawful Money Reserve" used in Table V and so slight differences appear. Also in Table V the first year given is 1902, while in Table VIII it is 1899.

TABLE IX

GROWTH IN STRENGTH OF THE NATIONAL BANKS IN LEADING CITIES OF CERTAIN SECTIONS OF THE UNITED STATES (000 OMITTED)

CITIES	TOTAL RESOURCES			SPECIE AND LEGAL TENDERS			DUE TO NATIONAL BANKS		
	1899	1912	Percentage Increase	1899	1912	Percentage Increase	1899	1912	Percentage Increase
New England—									
Boston	$302,910	$ 357,580	18	$ 24,629	$ 29,354	19	$51,808	$ 37,744	26*
Eastern States—									
New York City	985,682	1,762,727	78	171,834	286,157	66	252,785	345,018	36
Albany	19,940	63,192	211	1,565	4,644	196	6,771	23,576	248
Philadelphia	234,593	440,526	87	19,204	35,933	87	49,562	80,285	161
Pittsburgh	111,876	295,086	163	9,875	23,089	133	15,391	47,241	206
Baltimore	71,340	114,007	59	4,557	5,759	26	10,286	17,378	60
Southern States									
New Orleans	24,598	46,652	89	2,089	2,742	31	1,542	4,043	162
Houston	6,322	48,939	674	1,475	3,250	120	514	8,204	1496
Galveston†	3,392	7,940	134	293	923	215	831	1,256	50
Middle States—									
Chicago	241,467	571,760	136	37,127	88,972	139	67,797	164,436	142
Minneapolis	23,288	95,324	309	1,928	7,611	294	3,477	15,323	340
St. Louis	90,575	213,752	135	10,814	28,623	164	20,334	58,364	187
Kansas City	44,959	121,551	170	3,281	7,824	138	11,711	30,974	164
Pacific States—									
Seattle†	28,973	50,049	72	2,685	4,456	65	1,885	3,443	82
San Francisco	34,138	240,847	605	6,585	16,628	152	1,659	22,215	1238
Salt Lake City†	14,429	22,113	53	1,344	2,133	58	1,440	2,361	63

* Decrease.

† Comparisons are for 1906 and 1912.

fourth of 1 per cent. The effect of this is that many banks in near-by cities, e.g., Trenton, send to Philadelphia for collection large sums that might otherwise go to New York, because the Philadelphia banks have no such agreement and take all items at par. The only loss incurred by collecting through Philadelphia is due to the fact that in the latter city the banks have agreed to defer interest payment for three, five, or seven days, on amounts deposited, the length of time being determined by a grouping similar to that of New York in charging exchange. This deferring of interest in Philadelphia has been in effect only since September 1, 1911. Recently New York has attempted to offset some of the losses sustained through her exchange charge by extending the number of discretionary points to include other cities, provided the banks in those cities will meet certain requirements as to prompt remittance. It is too early to forecast the effect of this change. Albany has undoubtedly been a gainer, for the reasons which have favored Philadelphia, but her nearness to New York will probably make it difficult, if not impossible, for her to maintain her position. The growth of Pittsburgh has been remarkably rapid and that of Baltimore also deserves attention.

None of the cities in the South are as yet large enough for comparison with those of the East and Middle West, but New Orleans has been gaining rapidly and Houston and Galveston are growing. Houston now surpasses New Orleans in all three items given and shows a remarkable percentage increase. It seems probable that the use of the Panama Canal may send enough traffic through these southern ports to aid their growth very materially.

In the Middle States there are several cities, e.g., Cincinnati and Indianapolis, which are larger than some of those mentioned in the South and West, but they are surpassed by the ones selected for the table. Chicago, Minneapolis, St. Louis, and Kansas City have geographical advantages and such prestige that their future seems beyond question.

In the inter-mountain region, Salt Lake City is still relatively small but will probably maintain her position of leadership as the country develops. San Francisco has an undoubted advantage in position and has been growing with remarkable rapidity. Seattle

at the north will develop with the further growth of the Northwest and with the increasing business of the railroads with termini at Puget Sound.

There is nothing in the facts presented in this paper to indicate that New York is in the least danger of losing her position as the financial leader of the United States. There is ample evidence, however, that her growth is less rapid than that of other sections of the country and that other cities are now relatively of more importance than in the past. More capital is being invested in banking, more cash is being held, and more deposits of other banks are being collected. These deposits are largely being sent on to centers like New York and Chicago, but increasing amounts are being held in the West. Though there may still be an autumnal demand for New York cash, this demand is now meeting with little response.

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BEET SUGAR AND THE TARIFF

For the first time in two decades and for the second time in half a century, a Democratic administration, with a majority in both branches of Congress, is attempting tariff revision. As in 1894, the majority in the Senate is very small, and this narrow margin threatens to be broken now, as then, upon the issues of sugar and wool. It is because of their fiscal and political importance that the struggle centers around these two schedules.

Though the present situation shows a number of striking resemblances to that of 1894, still there are fundamental differences. Since that time there have been great changes in agricultural and industrial development. The changes in the sugar world, both in the consumption and in the sources of supply, have been among the most rapid of all. In few countries has this been more marked than in the United States.

In 1894, our total consumption was two million long tons (2,240 pounds) of sugar; in 1912, it was three and a half million tons, an increase of 75 per cent. In the former year it was 66.6 pounds per capita; in the latter, 81.3 pounds. Then Cuba, the Philippines, and Porto Rico were foreign territory; now they are under our flag or protectorate, with enormously increased sugar outputs. Then we imported considerable quantities of beet sugar from Europe; now we import practically none from this source nor from any other that obliges us to pay full duty. Then our domestic beet-sugar industry had barely begun and had an insignificant output of 20,000 tons; in 1912–13, its output was 625,000 tons. In striking contrast to this, the Louisiana production of cane sugar has remained stationary and is now less than half the domestic beet-sugar output.

What is the significance of this remarkably rapid development of our domestic beet-sugar industry? What is its relation to our changing agricultural and industrial conditions? How would it be affected, if it were affected at all, by the proposed changes in the tariff? Moreover, are the great mass, or any considerable number

of the citizens of the United States really very much concerned one way or another? Partisans of the beet-sugar industry and their allies, and partisans of free sugar give very different answers, and, as is usually the case, it is difficult for a layman to arrive at a satisfactory knowledge and conclusion of the matter. Furthermore, many important considerations involved regarding the beet-sugar industry do not lie upon the surface; they are much more complex than would seem at first thought or upon casual consideration. It will appear, as we proceed, that legislation has been a controlling factor determining the development of the sugar industry of almost every country, often rivaling economic factors in importance, a fact true of sugar in a peculiar degree.

In order to appreciate the problems involved, it is desirable to take at least a hasty glance at the development and situation of the present industry. Believing in the superiority of American soil and inventive ingenuity, and with imaginations aroused by the remarkable achievements of the European industry, Americans have made repeated attempts, beginning at least as early as 1830, to establish beet-sugar manufacture in nearly all sections of the United States.

The world's beet-sugar industry was literally established by the famous imperial decree of Napoleon issued during the Continental blockade in 1811. The story of the scientific experiments and encouraging legislation and the gradual, but steady, promotion and development of this industry, reads almost like a romance. By the end of the nineteenth century, beet-sugar had surpassed its great rival, cane sugar, and its production stood as two to one compared with that of cane. The peculiar and characteristic factor favoring the scientific experiments which caused such great development was the system of tariffs accompanied by a system of excises, the latter being laid in such a manner—usually upon the weight of the beets, or juice extracted therefrom, or on the estimated capacity of manufacturing machinery—that every inducement was offered to escape taxation by improvement of beets, processes of manufacture, and efficiency of machinery. This has resulted in trebling the sugar content of the formerly unknown beet and increasing the yield of refined sugar per acre in even greater proportion.

It is no wonder there were so many attempts to establish the industry in the United States during all these early years. But, up to the time of the cane-sugar refiners' formation of the original sugar trust in 1887, only one attempt had been successful enough to survive, that at Alvarado, Cal. Oxnard Brothers, with their Brooklyn refinery, went into the original trust, but two of them soon severed connections, and one of these, Henry T. Oxnard, went to Europe to study the beet-sugar industry. He returned in 1888, organized a corporation (the predecessor of the present American Beet Sugar Co.), appeared before the Ways and Means Committee in 1889 seeking protection for the new industry, and in 1890 erected a beet-sugar factory at Grand Island, Neb.

The McKinley bill of 1890 was the first national legislation to recognize and encourage the beet-sugar industry by a manufacturers' bounty of two cents per pound to continue fourteen years, and by provisions for free importation of beet seed and sugar machinery. The bounty was a device to afford protection and, at the same time, to cut the revenue at both ends and thus maintain the high protective tariff policy which was then threatening to topple over under the weight of the troublesome surplus.

In the meanwhile, Claus Spreckels, the "Hawaiian sugar king," erected a beet-sugar factory in California, the Oxnard Co. erected one more in Nebraska and one in California (1891), and in the same year, T. R. Cutler and other Mormons erected one in Utah. Two or three other factories were built about this time and most of them survived, though one of the Nebraska factories was moved to Colorado in 1905.

But besides the unavoidable and serious difficulties of establishing a highly technical industry which was new as regards both its promoters and its field of operations, the beet-sugar producers were confronted with questions of constitutionality as to both state and federal bounties. They soon lost the former in some cases and the Wilson bill of 1894 repealed the federal bounty and substituted an ad valorem tariff rate of 40 per cent, plus a half-cent per pound differential for refiners, thus giving much less protection to the domestic industries.

As a result of the loss of bounties and the financial depression

of the period, only one more factory was built before 1897 and it "proved an immediate and disastrous failure, owing to ill-conceived plans and inexperience." The Dingley tariff of 1897 increased the duty on refined sugar to $1.95, per hundred pounds, and on 95-degree centrifugals to $1.65, and provided for complete countervailing of all foreign bountied sugar. These rates have been in effect ever since, except for concessions to Cuba and our insular possessions and except the insignificant reduction from $1.95 to $1.90 on refined by the Payne-Aldrich bill of 1909.

Six factories had been built prior to 1897. Within about two years after the passage of the Dingley bill, twenty-four new factories were erected, exactly half (twelve) of which failed. In the two years 1900 and 1901 ten more new ones were built. These had a similar record. The stimulus of the new tariff and of rising prosperity apparently caused too much haste and the disregard of sound practical considerations, though such new industries suffer peculiar risks in their establishment.

A 25 per cent concession in duties and other favors were given to the Philippines March 8, 1902, and a 20 per cent concession to Cuba December 27, 1903, with dire predictions from the domestic beet-sugar interests that it meant their destruction. However, from 1902 to 1906, inclusive, thirty-seven new factories were erected, the smallest number in any one year being four in 1904. It was near the beginning of the latter period that H. O. Havemeyer, for himself, personally, and for the trust, officially, began extensive operations in acquiring the stock of existing beet-sugar factories, in the erection of others, and in the alleged forestalling and preventing of similar activities by independents.

Since the panic year of 1907, comparatively few factories have been erected, though there has been some increased activity during the past two or three years. Seventy-three factories were in operation during the season just closed, three others were idle, and one new one is now in process of construction. Plans for other new factories and for the removal of a few old ones are being held in abeyance, pending tariff legislation. Of the factories erected since 1902, comparatively few have failed, thus showing a better adaptation and improvement of the industry.

Our seventy-seven existing factories are located in sixteen states with four principal centers, namely, Michigan (16), Colorado (17), Utah-Idaho (12), and California (13). In 1912–13, Colorado led in sugar production, with California, Michigan, Utah, Ohio, Nebraska, Idaho, and Wisconsin following in order. California produces the beets richest in sugar, though Montana rivals her, and Colorado, Utah, and Idaho are comparatively well adapted to the industry. Michigan and surrounding states have the advantage of lower wage rates than the western states and no expense for irrigation.

In 1912, there were about 600,000 acres in the United States devoted to beets. The Department of Agriculture has estimated that this country has at least 274,000,000 acres of land adapted to sugar-beet production. Four million acres at the present yield would supply our entire present sugar consumption. To devote to sugar production 4,000,000 of the 290,000,000 acres now producing cereals and hay would affect our cereal and meat production in an insignificant degree, even if yields of the latter were reduced in proportion to reduction in area. Investigations, however, have shown that beet culture results in increased yields of other crops grown in rotation; hence there would be a net gain, rather than a loss, on this score.

The average yield per acre of beets harvested for the past ten years has been about 9.7 short tons (2,000 pounds). There has been an increase of about a ton per acre during this time. The sugar content of the beet has improved slightly, also, so that we now get about 240 to 250 pounds of sugar per short ton of beets, or about 2,400 to 2,500 pounds per acre harvested, as compared with about 2,000 to 2,100 pounds ten or twelve years ago. The average price paid the farmers for beets in the United States, as reported by the Department of Agriculture, has increased from about $4.10 per short ton in 1897 to about $5.80 at the present time.

In Germany the average yield of beets is about a third larger than ours and the sugar content about a fourth richer, so that her sugar yield per acre is about 50 to 60 per cent greater than ours. The price of beets is lower in Germany than in the United States, and German factories, on account of this lower price for richer

beets, get their raw material very much cheaper than do the American factories. The difference in the cost of the finished product is from half a cent to a cent per pound, averaging approximately three-fourths of a cent per pound. The French tonnage is higher than the American, but the sugar extraction is lower, so that the yield of refined product per acre is about the same as in the United States, though the price per ton of beets is lower.

It is in the cost of raw material alone that the best beet-sugar producers of the world, those of Germany, have any important advantage over American manufacturers. American factories operate upon a larger scale than those of any other country, and investigations have shown that the larger the factory the cheaper the unit cost of product.

The relative importance of this cost of raw material to other costs of production is made apparent by the United States Census data, which show that, in 1909, the total expense of beet-sugar manufacture was distributed as follows: salaries 4.7 per cent; wages 12.9 per cent; materials 73 per cent; miscellaneous expenses 9.4 per cent. All "materials" represented 73 per cent of the cost; "beets" represented about 60 per cent of this, and "fuel," the next largest item, only a tenth as much.

A careful examination of a large amount of available data, unsatisfactory though they be, indicates that the average total cost of producing granulated beet sugar at the American factory is between $3.00 and $3.50 per hundred pounds. Of this about $2.30 is for the sugar in the beets and about $1.00 for the manufacture. German manufacturing costs are about the same as American, but total costs are lower by differences approximating the differences in cost of raw material, that is, equivalent to about three-quarters of a cent per pound.

But it is not European beet sugar that the United States beet sugar has most to fear. Since the Spanish-American War, at least, whenever either European or American producers think of real competition, they think of the cane sugar of the tropics and especially of Cuba. Since the granting, in 1903, of the American concession of 20 per cent of tariff duties, the sugar output of Cuba has increased from 1,000,000 to 2,250,000 long tons and is now 2¼

times as great as it was at that time. Cuba has become the largest exporter in the world, supplying half the United States consumption, that is, practically all that is not supplied by insular possessions and domestic industries. Her output has recently grown to the point where she cannot dispose of it all, even in the preferential markets of the United States; hence she is forced to forego a large part of the concession on most of what she markets. Of course, prices of all sellers in United States markets, including domestic producers, have been reduced to the same extent for the same reason.

Cuba is very bounteously endowed by nature for sugar production. She grows large crops of rich cane which ratoon year after year without replanting. Her soil and climatic conditions are superior to those of other countries. As yet only a small part of her lands suitable for sugar culture has actually been planted to cane. Her modern sugar plantations, including their mills and systems of production and marketing, can, at present, under the financing and management of Americans and Europeans now interested in the island, produce sugar more cheaply than Germany or any other important beet-growing country; indeed, the cost is even below that of any other large cane-sugar exporting country, unless it be Java.

Furthermore, although the Cuban industry can now produce sugar more cheaply than the United States beet-sugar industry, by probably the equivalent of about a cent per pound of granulated, and a quarter of a cent below the best producers of Europe (Germany), and although the investment of foreign capital has brought about great improvements during the last decade, nevertheless it seems almost certain that the process of expansion and improvement—not alone as regards area but also as regards agricultural methods, transportation, marketing, and labor supply—is just beginning. To be sure, there may be serious economic and political obstacles to be overcome, but it cannot be denied that, with a fair field and no favor, Cuban sugar has great possibilities.

The area of the Philippines is two and a half times that of Cuba, but the present sugar production of the islands is relatively small

and their possibilities are more problematical. It is not at all probable that development in these islands can, or will, be as rapid as in Cuba, but facts that are available indicate that the country is well adapted to sugar production. There is even the suggestion of the possibility, if not the probability, that the output of the islands might in time be made to surpass even that of Cuba if permanent free entry to the United States market, coupled with the exclusion of the product of Cuba and other foreign countries, were secured. The experience of Java under the Dutch, of Formosa under the Japanese, of Hawaii and Porto Rico under American ownership indicates the great possibilites of American exploitation of the tropics. For example, Porto Rican output has increased thirteenfold in the last thirteen years. Hawaii made nearly equally rapid strides and, though for ten years it has been stated repeatedly that she has reached her limit, nevertheless, her production continues to increase.

Can the United States beet-sugar industry make sufficient improvements to compete with Cuba, or has it sufficient indirect advantages to offset its disadvantages? We are very far behind Europe in the matter of seed selection, breeding, and adaptation; likewise in the utilization of by-products; even more so in the matter of crop rotation. In the matter of improvement of seed, we have just begun, and it will take many years to produce varieties perfectly adapted to our needs. We have made some improvements in both agricultural and manufacturing machinery and now have new unperfected inventions that promise much. It seems probable that our costs can be reduced considerably.

The greatest and most immediate improvements could be brought about comparatively easily by better systems of crop rotation. Careful and comprehensive German investigations have shown that the deep stirring of the soil and the careful cultivation necessary for growing beets and similar root crops result in greatly increased yields of wheat, oats, and nearly all the crops following in rotation, this increase usually averaging 20 to 30 per cent and being in addition to increases due to Germany's general intensive system of agriculture. We have been so negligent, or so pressed with other matters, that we have no comprehensive data upon the

subject, but the little we do have indicates that we might secure similar results. Beets furnish a crop, not in substitution of, but in addition to, all other root crops which our markets will justify without the latter's narrow market limitations.

Most beets in the West are grown under irrigation where agriculture is comparatively new and still largely in the experimental stage. Each beet-sugar factory employs a corps of agriculturalists who spend most of the growing season visiting the beet fields and advising the farmers, not only as to their beet crops, but also as to crops grown in rotation and, incidentally, about many other of the farmer's problems. It has been claimed that every sugar factory is a sort of local agricultural college and there is no doubt that it greatly improves and stimulates the agricultural efficiency of nearly every community it enters.

Beets not only add to the diversity of crops in sections sorely in need of such, but also furnish relief to land too long continued under small grains and grasses. It is recognized that a crop requiring frequent stirring of the soil forms an almost indispensable part in a rotation series. The high altitudes of the West are not adapted to corn for this purpose, nor are the expensive irrigated lands usually profitable under the extreme system of extensive agriculture common to many parts of the United States. Furthermore, in these sections where corn is not grown, the sugar by-products are the more valuable as substitutes for corn and other stock food.

In the light of the facts mentioned above, as well as of others that lack of space forbids mentioning, what will be the effects if the pending tariff rates on sugar are enacted into law? As will be recalled, the present rate upon refined sugar is $1.90 per hundred pounds; that upon 95-degree centrifugals, $1.65, or $1.32 for Cuba. The pending bill proposes a reduction of one-fourth the duties immediately, and free sugar after May 1, 1916.

Notwithstanding many statements to the contrary, the balance of evidence goes to show that a lowering of the tariff on sugar results in an approximately equivalent lowering of prices to consumers. The effective tariff today is not $1.90, because Cuba's large production (partly favored), in addition to our own untaxed

supplies, more than equals our consumption and depresses the market very much, especially during the height of the milling season. However, this high duty on refined does allow the refiners to take a part of the difference, though not all of it, because of some present competition between them. For these reasons, it is probable, as is shown by calculations made elsewhere[1], that the present effective tariff upon refined sugar is about $1.50 to $1.65 per hundred pounds. The beet-sugar factories would have the protection of freights, also, varying with location from nothing to, say, $0.75 per hundred pounds, the more common amounts being $0.20 to $0.35.

From these facts, it appears that the average beet-sugar producer in the United States, would be on about equal terms of competition in the matter of direct, or absolute, costs if the tariff were reduced one-half. Those nearer the margin than the average producer, on account of less protective freights, or poorer quality of beets, or higher manufacturing costs, or other reasons, could stand less of a cut. The reverse would be true of those relatively advantageously situated.

In many cases the cost of beets necessary to produce a hundred pounds of sugar is greater than the cost of the Cuban refined product, so that some factories would probably try to get the farmers to grow the n for less. This would not be possible where competition with other crops prevented, though the withdrawal of much land from beets and the planting of it to other crops might lessen the profitableness of the latter in many cases, particularly if grown for local markets. On the other hand, the indirect benefits of beet culture would be an important consideration checking withdrawal from the industry.

The growing of beets is prima facie evidence that they are more profitable than crops which could be substituted for them and that farmers' land values would suffer by the capitalized amount of superior profits thus afforded upon the acreage that would be withdrawn. This would not be true to the same extent in communities where beet culture is new—and these regions form a large propor-

[1] Blakey, *The United States Beet-Sugar Industry and The Tariff*, Columbia University Studies in History, Economics, and Public Law, No. 119, 1912, *passim*.

tion of the total—that is, where the agricultural and manufacturing problems have only begun to be adjusted. On the other hand, these communities have not yet received, or recognized, the importance of the indirect advantages, nor do they know the extent of probable improvements.

The selection and adaptation of seed and the making of other improvements that have already been mentioned are not the only matters requiring time. Farmers are naturally conservative and do not readily turn from the crops and methods of a lifetime to others radically different. Hence, there is often considerable initial difficulty in securing a sufficient acreage in a community to justify the erection of a factory large enough to operate economically. After the erection of the factory, it takes several years for the growers to become thoroughly acquainted with the best methods of the new culture in all of its various phases, including its adaptation to their particular soils, climatic conditions, and crop rotations. On account of the expenses and risks thus involved as regards both grower and manufacturer, it can be seen that the establishment of the industry in any community, and its further growth therein, must take considerable time, and that any radical tariff changes must check the possible development, particularly in the newer fields of the industry.

If sufficient improvements looking toward reducing cost, or sufficient indirect benefits to offset direct disadvantages do not exist, or cannot be brought about within reasonable time; in other words, if the cost of protection will result in no ultimate net gain, it should be removed. In the matter of direct costs, it is not at all probable that improvements can be made rapidly enough to meet Cuban costs, and from that standpoint it is most probable that United States consumers would get cheaper sugar permanently by putting it on the free list. The probabilities of rapid expansion of the domestic beet industry, so as to meet the needs of our entire consumption, even if we continue the present protection, are small as compared with the probabilities in Cuba if sugar were put and kept on the free list.

On the other hand, if the possible improvements in the domestic industry are taken in connection with the indirect benefits, there

may be a sufficient net gain thus accruing to the United States to justify a reduction sufficiently gradual to permit the necessarily gradual development of the more important of these improvements, and, more particularly, to permit the indirect benefits to be established and recognized. A large part of any industry of such character and of such recent and rapid growth as the domestic beet-sugar industry, is necessarily new, and it is in the newer sections of its development, and in those where it has not yet been, but probably could be, established successfully, and not in the few older districts, that temporary protection is most justifiable, if at all. But any system of tariff protection must protect all; bounties for a limited number of years might be sound, economically, but the question is: Are they expedient politically?

The fundamental difficulty of United States sugar-producers as compared with those of other countries is in the agricultural labor cost. This is due to the extremely large proportion of unskilled hand labor required in beet culture. In extensive agriculture upon comparatively cheap land, such as cereal production, where most of the labor is performed with machinery and horses; also in our manufacturing industries where most of the processes are carried on with superior machinery, the labor cost per unit of product is comparatively small, even though higher wages are paid than in other countries. In such industries American capital, invention, and management need ask no odds of any competing country. But the case is radically different with beet culture where half to three-fourths of the work is done by hand and, hence, where high wages have much more effect in raising the unit cost.

In Europe, labor is relatively abundant and cheap, and land is relatively scarce and high; in the United States, the reverse is true. This is the fundamental reason for Germany's advantage in beet-sugar production. Cuba's labor may not be so much cheaper, especially when effectiveness is considered, but her soil and climatic conditions put her upon even better terms for competing in open markets.

Probably the United States, or at least many parts of it, will be better adapted to beet-sugar production as intensive agriculture displaces extensive, as the necessity for cultivating the soil, rather

than exploiting it, is forced upon us. Possibly the present experiment, as regards some sections, has been taken before its proper time. If so, they should not be subsidized indefinitely by hot-house protection. The chief question is not whether reductions should be made, but how rapidly they should be made. To determine this with any degree of accuracy would require a really expert non-partisan tariff commission co-operating with agricultural experts and the sugar-producers in the making of comprehensive investigations extending over a series of years to ascertain the facts in the case. Even then, only an approximation could be reached, but an approximation worth while.

The facts that are available indicate that the proposed reduction may be rather rapid, taking all things into consideration. The United States now has a sugar industry, established at great expense, which, though new as to most of its area, is sufficiently extensive to form the basis for comprehensive experiments and investigations. Press of other matters, lack of funds and facilities, and inertia, on the part of both producers and the United States Department of Agriculture, have thus far prevented the making of such investigations. True, we have made many experiments and great progress, but much more is possible and should be undertaken at once before we threaten by too rapid tariff reductions to condemn too much of the costly experimenting apparatus to the junk heap.

The thoughtful student cannot well help considering whether or not it is a step backward to endanger such an industry unduly, or even to check its progress unduly, in view of our gradual transition from extensive agriculture. Our urban population is growing apace, our industrial system is expanding, our exports of wheat and such agricultural products are destined to discontinue and exports of manufactures to increase.

The pending sugar schedule, if adopted, and continued as a permanent policy, will probably injure Louisiana and Hawaii producers more rapidly and severely than domestic beet-sugar producers. Hawaii, a one-crop and one-industry territory, already artificially stimulated to the limit, would be fortunate if it escaped bankruptcy. Free sugar would probably mean wholesale con-

fiscation there. Porto Rico would suffer much less on the whole, though it would not develop into a second Hawaii as it might under the present rates. For the Philippines, the change would have its greatest effect upon future developments, rather than upon vested interests. Even immediate free sugar could not reduce the high cost of living by more than about $1.30 per capita each year. Of course, this much is not to be despised, nor much to boast of.

One point further should be considered. The rates now proposed probably would not force a large proportion of the domestic beet-sugar factories out of business if Cuban and other foreign production remained stationary, or even if they do increase, if sufficient improvements and indirect advantages could be established and generally recognized. But, if it is assured that Cuban and all other tropical sugar can have permanent free entry to the United States markets within three years, the probabilities are that American and European capital in tropical territories will exploit their great resources so rapidly, that most, if not all, of both domestic industries, cane and beet, will be abandoned within a few years. This movement would not be all at once, it would even be delayed by considerations of possible reversal of political power and policy. If not very gradual, it would tend to cause stagnation and depression in all the districts of the United States most affected, not directly affecting the farmers most, necessarily, but the entire business of the country towns, somewhat as reversion from cultivated crops to sheep-growing has done elsewhere. Of course, these pangs of transition would scarcely be felt directly in the East.

But to state these probable results is not to argue that it is economically sound to continue the present duties. The various interests have already had considerable warning of possible changes. Three more years of dutiable sugar, as is proposed in the pending bill, would allow much more time for adjustment. The proposed reduction is a move in the proper direction and it may not cause over-severe pangs of transition. It seems probable that it will, however, and it would appear that twice as long a period of transition would be better for all interests concerned, including the great

masses of non-sugar producers, and even considering the fortunes of the Democratic party.

The promises and sincere attempts of the latter to reduce the tariff and the high cost of living are praiseworthy and in the right direction, but the masses of the people have been led, as is usually the case, to expect more from such legislation than is possible. Reduction in the tariff can lower high prices, but by a ridiculously small amount as compared with the extent of the rise in prices since 1897. Factors other than the tariff are more fundamental in this connection. The present administration may well pray that unfavorable seasons and scant crops may not accompany its legislative enactments and that the apprehensions and uncertainties attending tariff transition may not topple over an insecure financial and industrial structure. Conditions have changed considerably in the two decades since the Democrats last revised the tariff; human psychology is still much the same.

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NOTES

WASHINGTON NOTES

PROGRESS OF THE TARIFF BILL

By a large party majority of 281 to 139, the House of Representatives on Thursday, May 8, passed the Underwood tariff bill which has been under consideration in that body for about two weeks. The final vote was larger even than had been expected. Hardly any opposition to the bill was allowed to develop within the ranks of the majority; only five Democratic members voted in opposition to the dictates of the leader. The bill has now been sent to the Senate Finance Committee from which it will probably be reported as soon as an agreement can be arrived at with reference to the changes that must be made in order to control a majority on the floor. Just what these changes must be is now the question which is absorbing most attention in all quarters.

The principal opposition, as has been developed during the discussion in the lower chamber, seems to be found among textile manufacturers, dealers in metals and their products, and makers of chemicals. It had been expected that very great antagonism would be shown by the farming class, because of the changes made in the agricultural paragraphs. Apparently these rates have not been sufficiently cut to cause decided and general opposition, so that it may fairly be said that the only agricultural interests deeply concerned in the matter are those engaged in the production of raw wool and sugar. The sugar interest is quite as largely manufacturing as it is agricultural in nature. Thus the raw-wool growers remain very nearly the only group of farmers who have taken a strong stand against the changes in duty, although allied with them will undoubtedly be the sugar-planters of Louisiana and Hawaii and the beet-producers who have developed that industry in about half a dozen important states. In the Senate the sugar and wool interests are likely to combine with the textile interests, particularly the cotton manufacturers and the producers of woolens. The silk-makers are few in number, relatively speaking, and have been left with a tolerably high duty so that they are not likely to take a very active part. The other interests antagonized by the tariff, such as iron and steel manufacturers, chemical-makers, and allied trades, will be less

active than the men at the core of the organized opposition. President Wilson's task will, therefore, be that of breaking up the group which acts under the dictation of the producers just enumerated. It is not certain how many votes these men can control, but at the present writing it would seem that, if they are able to hold strongly together, they might shift a half-dozen votes and thereby turn a Democratic majority into a minority, so narrow is the margin upon which the control of the Senate now depends. In such an event, however, the question would arise whether President Wilson could not get an equal number of votes from the Progressive Republicans, thereby neutralizing the votes of those members of his own party which he had lost. It is probable that some votes can be gained in this way, but in order to get the number he needs he would have to make concessions to the high-tariff propensities of these Progressives, whose radicalism is not very much in evidence when the tariff is at stake. Just what these concessions would have to be is still doubtful, but they probably would include the placing of a moderate duty on wool and the raising of rates on woolens to correspond, as well as the revision of the cotton schedule so as to give more protection to the finer qualities of goods. Perhaps the beet-sugar men might be able to force the retention of a certain amount of duty on sugar after the end of the three years allowed by the present draft of the bill to elapse prior to the time when sugar is made free.

For purposes of permanent record it is worth while to note the exact changes which were made while this tariff bill was in the course of passage through the House of Representatives. The measure was originally introduced as H.R. 10 at the opening of the extra session on April 7. It then was taken almost immediately into a party caucus for the purpose of securing the assent of the members of the Democratic party to the proposed rates. The caucus made many alterations of which no official record exists and which can be ascertained only by comparing the text of the two bills. Such a comparison between the bill H.R. 10 originally offered and the bill H.R. 3321 finally passed shows interesting modifications. (See table, p. 557.)

Of the changes thus tabulated all were made in caucus with the exception of those relating to jacquard figured goods, sweetened chocolate, and asphalt. It must not be supposed, however, that this represents the relative importance of the work done in caucus and on the floor. The work on the floor, while not altering many actual rates, greatly changed the language of the paragraphs in a considerable number

of cases. In all nearly 90 paragraphs were thus changed, although in some of them the alterations were unimportant.

Article	H.R. 10		H.R. 3321	
	Paragraph Number	Rate	Paragraph Number	Rate
Phosphoric acid, per lb	1	2c	398	Free
Blood albumen, per lb	4	2c	403	Free
Calcium carbide	15	10%	450	Free
Indigo	39	10%	519	Free
Licorice, unground	42	½c	40	¼c
Magnesite, not purified, per ton	45	$1	543	Free
Other fish oil, per gallon	47	5c	45	3c
Castor oil, per gallon	48	15c	46	12c
Salts of metals	68	15%	66	10%
Vanilla beans, per lb	73	50c	71	30c
Limestone rock asphalt	80	50c	78	25c
Manufacturing pumice, per lb	79	½c	77	¼c
Rough block onyx, per cubic ft.	101	65c	99	75c
Shoe machinery	169	15%	451	Free
Buckwheat, per bushel	197	8c	445	Free
Rye, per bushel	201	10c	594	Free
Castor beans or seeds, per bushel	221	20c	217	15c
Sweetened chocolate	240	8%	236	2c lb–25%
Mineral waters (½ pint), per doz. bottles	258	15c	254	10c
Jacquard figured goods	267	35%	263	30%
Underwear	270	25%	266	30%
Linoleum, plain	289	15%	285	20%
Jute fabrics (single yarns)	292	25%	288	20%
Woven fabrics and shirting cloth	296	30–50%	292	35%
Decalcomanias	337	30%	333	20%
Cut precious stones	372	15%	368	20%
Umbrellas	398	30%	394	35%

Turning to the non-tariff sections of the bill—those relating to the income tax and the customs administrative system—it is found that very few actual modifications were made. Perhaps the most important in connection with the income tax is found in the change of language defining net income and excluding from classification as net income returns made to insured persons upon the expiration of endowment of annuity contracts. A further change of some interest relates to the method of paying the tax at the source, a part of the provision on that topic being made to read as follows:

> In all cases where the income tax of a person is withheld and deducted and paid or to be paid at the source as aforesaid, such persons shall not receive the benefit of the exemption of $4,000 allowed herein, except by an application for

refund of the tax, unless he shall, not less than thirty days prior to the day on which the return of his income is due, file with the person who is required to withhold and pay tax for him, an affidavit claiming the benefit of such exemption.

Another change in the insurance provision has been made by directing that mutual fire insurance companies requiring their members to make premium deposits to provide for losses and expenses, shall not return as income any portion of the premium deposits returned to their policyholders, but shall return as taxable income all income received by them from all other sources plus such portions of the premium deposits as are retained by the companies for purposes other than the payment of losses and expenses and reinsurance reserves. The important feature here is the addition of the words "and reinsurance reserves." These words have likewise been added at subsequent points in the section wherever needful to exempt the reinsurance reserves from inclusion as taxable income. Other changes were of a purely formal nature for the most part. The customs administrative provisions, although subjected to very great criticism in many quarters on the ground that they were unduly severe in their effect upon importers, have thus been practically sustained. So unfavorably are they regarded by foreigners, however, that the representative of the French government has very recently informed the authorities at Washington that in the event the law is passed in the condition it has now assumed, the conditions thereby produced will lead to retaliation by that government, probably in the form of applying the maximum tariff rates described in the French law. Should such a plan be followed, the effect would undoubtedly be to inflict considerable hardship upon the producers who are engaged in business with that country.

A NOTEWORTHY TARIFF DOCUMENT

In connection with the new tariff bill it is worth while to note the issuance of one of the most thorough tariff documents ever published by the government. This is House Report No. 5 (63d Congress, 1st session, to accompany H.R. 3321, published April 21, 1913). The report first makes a general survey of the tariff situation, and then offers one of the most elaborate and detailed comparisons of rates and of imports ever prepared. The text of the report, in explaining the reasons for, and methods of, revision, gives the most clear-cut idea which has yet been furnished of the purposes in the minds of those who framed the act. On this point the committee says (referring to the platform pledges already given):

We believe that this pledge contains two essential ideas, both of which have been applied in the formulation of H.R. 3321 as follows:

1. The establishment of duties designed primarily to produce revenue for the government and without thought of protection.

2. The attainment of this end by legislation that will not injure or destroy legitimate industry.

It is a fact that in many lines of business the system of protection has been carried to such a point as to put business into an artificial condition and to induce the upbuilding of many establishments not needed and so uneconomically conducted as to preclude them from doing business except by virtue of special favor granted them through government action. If these establishments stood alone today, there would be no reason why the special privileges accorded to them should not be instantly wiped out. If as a result of the elimination of excessive protection, ill-equipped and badly organized factories should find it necessary to discontinue operations, the country would be the richer on that account, since its capital would be diverted into productive channels, and it would be enabled to devote itself exclusively to healthy enterprises yielding a reasonable return.

The business enterprises which have been artificially created at an unwarranted expense do not stand alone, but have staffs of employees who are immediately concerned in their maintenance and to whom the necessity of shifting their operations would be a hardship. There are complex commercial relationships partially developed under, or dependent upon, the existing tariff which it would be unfair and unwise suddenly to disturb. This does not mean tnat there should never be a beginning in the task of eliminating these evils. On the contrary, it shows the necessity of beginning the task promptly. It, however, emphasizes the necessity of carrying through the transition to a state where business enterprises will be obliged to rest upon their own bases without government support, in such a way as to avoid unnecessary jars to trade and to give every opportunity for reasonable adjustment, so that the shift may be made without unnecessary displacements of labor and capital. The committee has had these facts in mind in the preparation of H.R. 3321 and the attempt has been made—

1. To eliminate protection of profits and to cut off the duties which enable industrial managers to exact a bonus for which no equivalent is rendered.

2. To introduce in every line of industry a competitive tariff basis providing for a substantial amount of importation, to the end that no concern shall be able to feel that it has a monopoly of the home market gained other than through the fact that it is able to furnish better goods at lower prices than others.

It is felt that tariff schedules aiming at these two conditions can damage no legitimate industry and are the least that can be asked by those who desire the consumer to be safeguarded in some measure against exploitation by monopolies that now practically dictate prices in the domestic field.

RENEWED PETITION TO ADVANCE FREIGHT RATES

Long-expected action has been taken by the railroads running through "official classification territory" (which is that district lying east of Chicago and north of the Ohio and Potomac rivers), in filing with the Interstate Commerce Commission schedules providing for an increase of 5 per cent in freight rates. This is a resumption of the effort made in 1910, shortly after the opening of the Taft administration, to secure an advance in rates. Since the 1910 attempt, which resulted in complete defeat through the reorganization of the Interstate Commerce Commission on a somewhat radical basis, the railroads have been in an increasingly difficult situation owing to their growing costs of operation. These growing costs have included a rise of about 50 per cent in the cost of capital and probably an increase of two-thirds of that amount in their cost of supplies and construction material. Wages have been advanced on several occasions, the last two being those which grew out of the demands made by the engineers in the summer of 1912 and the firemen in the spring of 1913. In both these cases arbitration resulted in the assignment of materially higher wages. Despite the fact that these increases in costs have been general, and despite the fact that freight traffic has been very heavy, there has been no increase in freight rates, the commission turning a deaf ear to practically every demand for an advance that was presented to it. Altogether the net revenue situation of some important roads has been decidedly unsatisfactory. Recent decreases in dividends have been the outcome of the difficult revenue position, and have of course added to the problems of getting new capital for use in railroad construction.

The present demand for a 5 per cent increase is more moderate than former requests. It is estimated that on the freight passing between New York and Chicago it would amount to an advance of between $35,000,000 and $40,000,000 in gross revenue. Of this total it is supposed that about 50 per cent would accrue to the three main systems, the Pennsylvania, the New York Central, and the Baltimore & Ohio. The total number of miles of line operated by the fifty eastern roads uniting in the present request is 47,205 and their operating revenues are $1,095,604,377, while their operating expenses are $768,056,843. This leaves a net operating revenue for all roads of $327,547,534. When deductions from income for interest on funded debt and all other deductions are made, a net corporated income of $168,356,193 is left. During the past fiscal year (ending June 20,1912) there were declared, out of income,

dividends on preferred and common stock amounting in the aggregate to $100,136,627. After allowing for betterments, etc., a net surplus for the year of $43,861,557 existed, but thirteen of the roads reported a deficit instead of a surplus. It is thus seen on how narrow a margin the lines have been working of late.

The petition referred to, asking for the higher rates, was filed on Wednesday, May 15. It calls attention to the fact that in rendering an opinion in the advanced rate cases, in 1910, the Interstate Commerce Commission, after reviewing the outlook, indicated its willingness to reconsider its conclusions against higher rates in the light of future developments in the operations of the carriers. The petition says: "Your petitioners believe that the time has now arrived when the results of the operations of the carriers subsequent to the former consideration of this case should be laid before the commission." It is believed that the effect of the petition will be to afford a definite test of the attitude of the Wilson administration on the rate question, by showing whether it is disposed to enable the carriers to meet the existing revenue problems or not. In order to get a very definite test of the kind referred to, it has been deemed wise to keep the rate advance asked for down to an exceedingly moderate basis. Five per cent is probably about as little in the way of an advance as could be requested, and yet have the increase amount to anything in its effect upon revenues. It will be some time before any positive indication of the disposition of the commission or of the administration on this matter can be obtained. Meanwhile it is expected that the roads will do all they can with a view to convincing the public of their necessity for relief.

BOOK REVIEWS AND NOTICES

The Old Colonial System 1660–1754. Part I, "The Establishment of the System, 1660–1688." By GEORGE LOUIS BEER. New York: Macmillan, 1912. 2 vols., 8vo, pp. xvi+381; vii+382. $4.00 net.

In his *Origins of the British Colonial System 1578–1660* Dr. Beer promised a detailed study of the system during the century following the period of which he was then writing and preceding the period treated in his previous work on *British Colonial Policy 1754–1765*. This promise is now in part fulfilled by the issue of the two volumes making up Part I of the new work. These bear the subtitle "The Establishment of the System" and cover the period 1660 to 1688.

The scope and content of the study are well indicated by the author's definition of the colonial system which he regards as "synonymous with that complex system of regulations whose fundamental aim was to create a self-sufficient commercial empire of mutually complementary economic parts. An understanding of this system must rest primarily upon an analysis of the economic theories then current, mainly in so far as they found expression in the Acts of Trade and Navigation. But these laws by no means constituted the whole system. The scheme of imperial defense was a closely correlated part, and the English fiscal arrangements as well as the method of regulating the slave trade were integrally connected with it" (p. vii). This also involves, we are told, a study of the machinery employed and its efficacy, besides an investigation of the consequences of the policy to the political and economic development of the colonies.

The period of the Restoration, says Dr. Beer, marks the beginning of an era of expansion when the forces working for national growth, sea power, commerce, and colonies, checked since the time of Elizabeth, were once more set free. By this time, however, the attitude as to population had changed, emigration was no longer favored, and the colonies were looked upon, not as an outlet for surplus population, but simply as feeders for English commerce. Thus there was an added reason for favoring tropical colonies, since, besides producing things not grown in England, they required only a relatively small amount of white

labor, used simply to supervise the slaves. The New England colonies, on the other hand, were of no advantage in a system with such aims, and they were kept only to prevent them falling into the hands of others.

The "economic framework" of the old colonial system is to be found in the Navigation Act of 1660, the Staple Act of 1663, and the Plantation Duty Act of 1673. Except for the enumeration clause these were very largely based on precedent. The system, moreover, was similar to that of other countries and the principles on which it was based were supported with "substantial unanimity" by the economists of the day. If repugnant to modern economic, political, and ethical ideas, says Dr. Beer, departing for the moment, and with inadequate discussion, from his purely historical attitude, it must be remembered that "these modern ideas are largely the result of changed conditions and were totally inapplicable in the seventeenth century, when they would have seemed, and correctly so, merely the vagaries of an unpractical utopian out of touch with the forces that were making history" (p. 107). To show further that the system was by no means one-sided, there is carefully pointed out the gain to the colonies through protection against the Barbary pirates and others and through the prohibition of tobacco-growing and the various devices for preferential treatment of colonial products in England.

A detailed consideration of the revenues derived from the various colonies leads to the conclusion that "prior to 1689 the English Treasury derived virtually no direct income from the colonies, and that the revenue which accrued to the Crown in its various capacities was practically in its entirety devoted to colonial purposes" (p. 202). Moreover, the policy of the English government to make each colony bear its own local expenses had worked out by 1688 so that, aside from the costs of imperial defense, the colonies were but a slight burden on the mother country.

This commercial legislation assumed increased political significance when it was found that its efficient administration necessitated the appointment by the Crown of a considerable group of officials resident in the colonies, and that it thus led to the intrusion of royal officials in colonial affairs. Three different departments of the home government became thus involved. The Privy Council and its committees having general supervision of colonial affairs found a responsible representative necessary. Inability to secure conviction by jury trial forced the Admiralty to establish its own courts in the colonies. Finally, the Treasury learned that it must also have its officials on the ground to safeguard the revenue, especially in connection with the enumerated

commodities and the Plantation Duties Act of 1673. The abolition of the system of farming the revenue and the transfer of many colonies to the Crown further increased this body of officials. The triple system of administration thus evolved was a constant source of disputes, especially in the crown colonies, where, however, the wrangles were largely personal in character as contrasted with those in the proprietary colonies which were due more to a feeling that the colonies' rights were being invaded by this outside body of officials.

The dependence of the valuable tropical colonies on slave labor made the control and regulation of the slave trade appear as an essential part of the colonial system. Consequently the Restoration period is marked by a determined effort to secure a considerable portion of this trade. This, however, led to constant disputes between the planters and the Royal African Company over the supply and price of slaves.

Having thus described the commercial legislation, its administration, and its fiscal aspects, the author turns in Vol. II to a description of the conditions in the various colonies in the West Indies and on the Continent, an account of the colonists' attitude toward the laws, and a statement of the results which followed from them.

At this period the richest and most important colony in America from the imperial point of view was Barbados. By 1660 its resources were well developed, though the rest of the Leeward Islands were still in a very primitive state. As a result they complained against the laws of trade much less than Barbados, since they grew up under the system and only after the fall in the price of sugar had already taken place. Much the same was true of Jamaica, in the development of which the Restoration government took great interest. In all of these islands the Navigation Laws were reasonably well enforced. The Bermudas were fairly prosperous, though not without grievances, while the Bahamas were little more than a haunt for pirates.

In Virginia the advantages and disadvantages of the system were so evenly balanced as to prevent serious objection. The chief trouble was caused by inability to limit the tobacco crop, insufficient protection against the Indians, and an inequitable system of taxation. Finally all attempts to divert the colony from tobacco were abandoned owing to the large revenue derived from that crop. In Maryland conditions were essentially the same, and in both colonies the laws were well observed. At this period the Carolinas were of little economic importance, though the process of settlement there was typical of the ideals underlying the colonial policy.

In Newfoundland under the influence of the Western Adventurers, settlement was discouraged until 1675, when that policy was reversed, on its being shown that settlers were really of advantage to the English fishermen, and that the development of fisheries as a source of commercial and naval strength, always the real objective of the government, would be furthered thereby. Nevertheless, this was a period when France was gaining in the fisheries more rapidly than England.

At the time of the Restoration but little was expected of the northern colonies on the mainland. New England always failed to fit into the imperialistic scheme and hence "its political connection with England was always a disturbing factor interfering with the plans of the English government," a situation which finally, under favorable conditions, led to the disruption of the old commercial empire (p. 235), and may be likened, it is suggested, to the relation between Rome and her colony of Gaul. Massachusetts persisted in violating the Navigation Laws and practically denied the authority of Parliament. This opposition was not based primarily on economic grounds, for the Navigation Laws only slightly checked Massachusetts in her industrial activity, but was founded rather on the political consequences involved in recognizing the authority of those laws. For this same reason England could not longer avoid the issue, and the abrogation of the charter became inevitable if the empire was to continue. Much the same explanation applies to the trend of events in the other northern colonies and the movement which finally led to the establishment of the Dominion of New England.

The general theory as to the interpretation and effect of the British colonial system here outlined will at once be recognized as that presented in the author's earlier works. Its value and suggestiveness have already been widely recognized. The important contribution of these two volumes is to be found in the full and elaborate support of that theory given by their detailed study of the British policy and its effect upon colonial politics and commerce as they worked out during the period of the Restoration. That this has been carried out with great thoroughness and the best scholarship is sufficiently guaranteed by the author's name.

But the feature of this particular study which stands out in the mind of the reviewer as of especial significance is the light thrown upon American colonial history by placing alongside it a study of the British commercial policy and its effects as seen in the other American colonies of Great Britain, particularly the West Indies. In a notice of the author's preceding volume the reviewer expressed the wish that this field of industrial history might receive more attention, and it is with no

slight satisfaction that he finds his hopes so completely realized in the results here obtained by Dr. Beer. (Professor Mims's recent volume is suggestive in a similar way, though the connection of the French West Indies is of course less direct.) Certainly no one can read these volumes without a feeling that the history of the American colonies on the mainland has too long been written as if they were an isolated group. It is time to realize the far-reaching importance of West Indian history for securing a broad understanding and interpretation of the political as well as the economic life of the continental colonies, to say nothing of the relation of the whole group to the British empire. We can ask no better than that the remainder of the colonial period be covered as successfully as that of the Restoration.

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Panama Canal Traffic and Tolls. By EMORY R. JOHNSON. Washington: Government Printing Office, 1912. 4to, pp. vi+490.

This report by Professor Johnson is made pursuant to a request by the secretary of war "to bring up to as late a date as practicable the data contained in the *Report of the Isthmian Canal Commission* for 1899–1901, and also to formulate rules and regulations governing the measurement of ships going through the canal, and to make an investigation and recommendation regarding the tolls to be charged." The report on the measurement of vessels is deferred to a second volume, which is in course of preparation.

Included in this report is much useful data which do not bear directly upon the Panama Canal but should be mentioned before the report proper is taken up. Four chapters (54 pages) are devoted to the Suez, Kaiser Wilhelm, Manchester, and Amsterdam canals respectively. There are eight appendices, covering in all 258 pages. Of these, Appendix I (164 pages) is a reprint of Professor Johnson's "Report on the Industrial and Commercial Value of the Isthmian Canal" from *Report of the Isthmian Canal Commission*, 1899–1901; the others contain abstracts of laws relating to tolls and charges on the leading ship canals of the world, and the much-discussed Panama Canal act of August 24, 1912.

Discussion of the Panama Canal has centered mainly around the following questions:

1. What is the amount of traffic available for the canal?
2. What tolls should be charged?
3. Should American coastwise traffic be exempt from tolls?

What light does this report shed upon these main questions?

1. After a study of the increase in general traffic between 1899 and 1912, with a forecast for 1914–15, Professor Johnson concludes that about 10,500,000 tons of traffic annually will be available upon the opening of the canal, though it is not probable that the entire tonnage would be transferred to the canal route within a period of two years. Between 1915 and 1925 the author anticipates an increase of traffic of more than 60 per cent, reaching a total of 17,000,000 tons, net register. This estimate of traffic is based upon the assumption that the rate of tolls recommended in this report will be adopted.

2. In discussing the principles that should govern the fixing of tolls, Professor Johnson states that "the commercial usefulness of the waterway should be given first consideration. Tolls may wisely be imposed to secure revenue, but the transit dues must not prevent the canal from fulfilling its primary function. . . . . The canal should be commercially self-supporting, provided revenue large enough to enable the canal to carry itself can be secured without unwisely restricting traffic" (p. 193) This principle appears to be open to criticism. In the absence of military advantage, there would seem to be no good reason why the canal should not, at least in the long run, pay for itself. The author states that the purpose of the canal is to shorten the commercial routes of the world; but unless it can shorten them enough to permit those using the canal to pay for it eventually, the undertaking will not have proved economically feasible. In ascertaining a practicable rate, however, Professor Johnson evidently does not have to base it on the principle that the canal will not in the long run be self-supporting. He estimates the annual expense at $19,250,000, including an amortization fund of 1 per cent. This expense can be met with a toll of $1.20 per net ton, and "without unwisely restricting traffic"! This rate is based upon a study of the relative distances between the leading commercial ports of the world via the Panama Canal and by alternative routes, and the saving in time which would be effected. In this connection, the author very properly takes account of the convenience and cheapness of the fuel supply available on the various routes; he also considers the effect of intermediate trading-points on the choice of routes. The rate of $1.20 per net ton is believed to be low enough to secure virtually a maximum tonnage. Here is obviously, for the least available traffic, the adoption of the principle of what the traffic will bear, though the remaining tonnage would, of course, not be charged *all* that the traffic would bear.

3. Professor Johnson makes no attempt to settle the interpretation of that clause in the Hay-Pauncefote Treaty which provides that the

canal shall be free and open to the vessels of all nations without discrimination; but he sums up the arguments for the exemption of our ships pro and con, and concludes that "our coastwise shipping does not need further aid, and to exempt our marine in the foreign trade from canal tolls would be to grant a subsidy that would reduce the government revenues without effectively aiding our merchant marine." In reaching this conclusion Professor Johnson appears to answer satisfactorily the contentions of those who believe (1) that the American merchant marine in the coastwise trade will be imperiled if our ships be not exempt, and (2) that the transcontinental rail rates will be higher to the extent of the tolls and hence the main purpose of the canal in lowering transcontinental rates will be defeated. As to the first contention the author argues that our merchant marine has a monopoly of the coastwise trade and that the large coastal steamship lines now fix rates as high as the traffic will bear, transcontinental rail rates being the basis of their charges. It appears then that they need no subsidy, but should rather be subjected to the control of the federal government as a guaranty of reasonable charges. At any rate, it seems certain that a remission of tolls to them would not result in lowering their rates to shippers.

As to the competition of the canal route with transcontinental railways, Professor Johnson does not believe that a rate of $1.20 per ton would permit the railroads to retain the traffic between coasts without a ruinous reduction of rates. At present the maximum rates which the steamship lines charge are determined by the transcontinental rail rates rather than the reverse. When the canal is opened even with tolls the boat lines will have gained an advantage by the shorter route and will be able to cut under the rail rates. The railroads will therefore give up the coast to coast traffic. It is argued that a reduction of their rates on traffic from coast to coast would necessitate, under the terms of the long-and-short-haul clause, a reduction on other traffic, as, for example, to the intermountain district; and that rather than take a chance of reduced revenue, if not actual loss, on both coastal and internal traffic, the railways will prefer to give up the former and attempt to specialize on the latter at paying rates. The argument is worked out with care, and the conclusion seems entirely warranted.

The extent of railway control of boat lines at present, and the possibilities of working agreements between railway and steamship lines, are not discussed in the report, and the question whether railway-owned vessels should be permitted to use the canal is merely mentioned. It is perhaps to be regretted that these and some other minor points were not

developed; but on the whole the report is a very valuable and very timely piece of work. The law of August 24, 1912, exempting American coastwise vessels from tolls, was passed before the evidence in this volume was generally available. Congress should study the report with care, if the repeal of that law comes up for consideration.

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UNIVERSITY OF CHICAGO

Report of the Commissioner of Corporations on Transportation by Water in the United States. Part IV: "Control of Water Carriers by Railroads and by Shipping Consolidations." Washington: Government Printing Office, 1913. 8vo, pp. xvii+101.

This report taken in conjunction with the three preceding volumes on (I) "General Conditions of Transportation by Water"; (II) "Water-borne Traffic"; and (III) "Water Terminals," presents a sufficiently adequate account of the existing status of water transportation in the United States. The present volume contains nothing startlingly new; it is rather an elaboration of material presented in Vol. I.

In brief, the report shows that very little of the traffic on our waterways today is carried by independent competitive boat lines. The control of water traffic is largely in the hands of railway companies, of industrial concerns, or of shipping monopolies. On the Atlantic and Gulf coasts there are almost no independent boat lines. The Atlantic, Gulf, & West Indies Steamship Lines and the Eastern Steamship Corporation, two huge consolidations, are the only rivals of the railway-owned (or controlled) boat lines. On the Great Lakes all the important through-passenger and package-freight lines are owned by railroads; while a large part of the bulk freight, other than grain, is carried by boat lines belonging to industrial concerns. On the Mississippi River system the chief traffic is in coal handled by a single industrial consolidation, the Monongahela River Consolidated Coal and Coke Co., a controlling interest in which is owned by the Pittsburgh Coal Co.; the only independents are a few feeble packet lines. On the Pacific coast, independent steamship lines are more important, although the Union Pacific and the Southern Pacific railroads now dominate some of the largest lines.

The railway control over canals is almost as complete. About 90 per cent of the private canals now in operation are thus controlled; and on the Erie canal "the west-bound business has virtually passed under the control of railroads, while east-bound traffic has been largely diverted

from the canal by repeated reductions in rail rates, rate arrangements, and railroad control of terminal facilities."

The purpose in this acquisition of boat lines seems to be threefold: first, to eliminate the competition of water-carriers; second, to obtain an entrance into territory not open to the rail lines; and, third, to secure valuable feeders, mainly local lines. In some cases all of these purposes are apparent, while in others a single reason seems to have been the moving force.

Attention should be called to the fact that boat lines not controlled by railroads have followed the same laws of consolidation that have operated in railways and other industries generally. It is apparent, therefore, that the common belief that water transportation would *ipso acto* insure low freight rates is not well founded. The danger of monopoly rates on waterways is perhaps as great as in the case of railroads. Consequently if the Interstate Commerce Commission succeeds in preventing the railroads from destroying water competition by temporarily cutting freight rates and by refusing to prorate, there will still remain the task of regulating water rates *per se*.

Perhaps it is also necessary to remark that this conclusive evidence that the railways largely control the existing waterways is not proof that in the absence of such control waterways would be able to compete on even terms with the railroads. Certainly this evidence cannot be regarded as throwing any light whatever on the comparative cost of transportation by water and by rail. The economic feasibility of rehabilitating our waterways must be decided on quite other grounds.

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Company Fire Insurance in Russia, 1827–1910. By the Tariff Committee of Russian Insurance Companies. Translated from the Russian by G. DOBSON. St. Petersburg, 1912. 4to, p. 142.

The term Company Insurance in this report evidently refers to the business of stock companies, since the expression is continually contrasted with Mutual Fire Insurance. Owing to the greater amount of available data, as well as the greater amount of business done, the report deals mainly with the class of insurance indicated by the title; but the other form of insurance is given considerable attention.

There were at the time of the report 13 Russian companies in the field. The first of these was organized in 1827. Besides these 13 companies which are still doing business, 6 others have been organized, but have gone out of

existence after business experiences of from 3 to 29 years (pp. 2–3). Mutual fire insurance is of two kinds, namely, compulsory and voluntary. Compulsory state insurance, carried on by various provincial governments, apparently dates from 1794. (The report says 1894, but the dates of its extension, 1817 and 1844, indicate the misprint.) The compulsory insurance applies largely to peasant buildings. The provincial authorities in many cases also administer voluntary insurance funds. There are further in various places mutual insurance organizations carried on by the insured themselves. Eleven classes of these latter are enumerated (p. 4). The total amount of fire insurance of all kinds in force and of record in 1905 was 14,179,286,000 roubles. Of this amount 9,459,905,000 roubles or about two thirds of the total was carried by the companies (pp. 21 ff.). By 1910 the risks of the companies had increased to nearly 12,000,000,000 roubles. The premiums in this year amounted to 73,061,480 roubles. The premium rate during the entire experience of the companies has remained remarkably stable. Excepting the first half-dozen years, when it was lower, it has remained close to the average for the 83 years 1827 to 1910, namely, 65 kopeks per 100 roubles (p. 20). The kopek, like our cent, being the hundredth part of the monetary unit, this rate will of course be equivalent to 65 cents per $100 per year. As with us, the rate on different classes of risks varies greatly. In general it may be said that the Russian premiums are high as compared with those of European countries, though lower than those in the United States, where the average premium for all classes of risks is above 80 cents per hundred dollars.

Company insurance in Russia has by no means proved a get-rich-quick opportunity to the stockholders. While the rates have been maintained and while there as elsewhere improvements have been made in construction of buildings as well as in fire-fighting appliances, the profits have not increased. In fact competition and the expansion of operations have led to the assumption more and more of the less desirable classes of risks which it seems at first were ignored. Also, the mutuals have in many lines crowded out the companies from the more desirable risks (p. 62). Farm risks are in general carried at a heavy loss to the companies (pp. 72–73). The moral hazard seems especially prominent. In general 465 fires out of 1,000 are of "unknown" origin. From 1905 to 1909 there were 799 cases of proved incendiarism and 9,562 cases in which incendiarism was suspected but not proved (p. 78).

The significance of European civilization and social conditions in connection with insurance premiums is strikingly illustrated by the fact that in Finland the various kinds of property can be insured at less than half the rates that have proved unprofitable for other parts of the empire (pp. 132–33).

The bulk of the report consists of elaborate statistical tables. Besides these and not included in the paging of the report there are 30 colored diagrams and cartograms exhibiting various aspects of the collected data.

Krieg und Kapitalismus. By WERNER SOMBART. Munich and Leipzig: Duncker & Humblot, 1913. 8vo, pp. viii+232. M. 6.

If heretofore, in all inquiries into the effects of war on national economic life, only its destructive character has been kept in view, Sombart in this book undertakes for the first time to demonstrate its constructive nature. He endeavors to show in how far militarism can be considered the creative source of modern capitalism.

The strong influence which militarism has exerted upon the development of modern capitalism is due primarily to the fact that, owing to the enormous expansion of armies as well as of navies in nearly all of the old countries, war has caused the first demand for uniform products in large quantities (Massenbedarf) and has thus necessarily led to the creation of large-scale methods of production. And this demand, which manifested itself in the most diverse fields, that of clothing, of arms, of food, and of maritime transportation, led all the more rapidly to production on a capitalistic basis as the states passed more and more to a uniform standard of military equipment. Thus for instance the textile, copper, tin, iron, and shipbuilding industries even at an early date assumed under the influence of militarism the form of large-scale production. This took place first of all in commerce, which early took possession of business transactions between the military administration and the individual producers. Large-scale trade and large-scale production have received their first impetus from militarism. Even though militarism hindered the accumulation of capital by the burden which it imposed on the population, it furthered it all the more in other ways. The first great fortunes such as those of the Fuggers and Rothschilds owe their origin to war.

Sombart confines his inquiry to the period extending from the origin of modern armies down to the end of the eighteenth century, which may be considered as the most decisive years for the history of modern capitalism. For him there is no doubt that for this early capitalistic period militarism has been the mainspring of capitalistic organization.

The book, which is distinguished by abundance of the material used and by clear organization of the subject, constitutes a valuable contribution to the history of modern capitalism.

American Syndicalism. The I.W.W. By JOHN GRAHAM BROOKS. New York: Macmillan, 1913. 12 mo, pp. 264. $1.50 net.

This book may well be entitled a sequel to the author's *Social Unrest.* Mr. Brooks does not confine himself in this book to a treatment of the I.W.W. but treats also of anarchism, socialism, and European syndicalism, "on the ground that our tantalizing I.W.W. are not otherwise to be understood" and that, "Beyond socialism, these [anarchism, syndicalism, and the I.W.W.] represent the most revolutionary phases of social and economic revolt" (Preface). Perhaps in the course of time the I.W.W. may come to mean all

that this book attempts to make it mean; it is, however, the opinions of other students of the I.W.W., that syndicalism and the I.W.W. cannot now be identified as one movement. The author admits in the Preface that the theories of the men in this so-called movement differ to the point of confusion, yet he devotes his book almost entirely to building up a consistent philosophy for "the movement" out of the confused mass.

After criticizing most of the activities of the I.W.W., Mr. Brooks concludes that "there is no denial that our I.W.W. may upon other grounds justify their existence. They may be honestly accounted for because of things intolerable in our present disorders. Syndicalism, with its excesses of statement and of action, with all the phantasm of its working method, will continue, and *should* continue as one among other prodding annoyances that leave society without peace until it dedicates far more unselfish thought and strength to avoidable diseases like unmerited poverty, unemployment, grotesque inequalities in wealth possession, the forced prostitution of underpaid women, and our fatuous brutalities in dealing with crime." The present function of the I.W.W. is that of an awakener, to arouse society to a realization of our present evils, and to force us to action in curing them.

As a study of our present social unrest, this book is both interesting and instructive. It is well worth reading and will probably prove satisfactory to all but the careful student of the I.W.W. As a comprehensive study of the I.W.W., it is a disappointment. Perhaps, though, no better study can be made at this time. It may help, like the movement it discusses, to arouse our people and cause our worst social conditions to be bettered.

The Finances of Vermont. By FREDERICK A. WOOD (Columbia University Studies in History, Economics and Public Law, Vol. LII, No. 3). New York: Longmans, Green & Co., 1913. 8vo, pp. 147. $1.00 net.

The author has divided the financial history of Vermont into five periods —the first extending from the beginning of settlement to the formation of an independent government in 1777; the second covering the period of independent government; the third extending to the Civil War; the fourth ending in 1878, and the fifth following that date.

During the first period the fiscal activity of the territory consisted in meeting town expenses with taxes based roughly on general property. When the state entered the Union in 1791 it supported itself mainly by taxes levied on a grand list, made up of polls, a faculty tax, and a general property tax, under which the specific elements of property had fixed valuations. The faculty tax continued through the following period, but the characteristic feature of that time was the evolution of the general property tax. The period ending in 1878 is characterized as the debt-making and debt-paying period during which the state promptly met its share of the Civil War obligation by resort

to direct taxation. The last period has been marked by the introduction and evolution of a thoroughgoing system of taxation of public service and financial corporations, supplemented with a collateral inheritance tax. The general property and poll taxes have been relegated largely to local use. The property tax however, retains a prominent place in Vermont's fiscal scheme. The legislature has recently attempted two changes in the general property tax which the author regards as desirable: (1) the abolition of offsets and (2) the taxation of intangible property at a low and uniform rate.

To the general discussion is appended statistical matter indicating the revenue yielded by the various taxes, in five-year periods from 1793 to 1910, as well as the sources and amounts of expenditure.

Price Maintenance. By THOMAS A. FERNLEY. Philadelphia: The Commerce Publishing Company, 1912. 8vo, pp. xvi+311. $2 net.

The author, a business man emphasizing the middleman's point of view, charges the evils of the competitive system to the phenomenon of price-cutting. He believes that price competition is not legitimate, that competition should be confined to quality. So thoroughly does this doctrine pervade the book, that the author openly indorses price agreements between dealers. The legality of such measures is denied by the present interpretation of the Sherman Anti-Trust law and the Canadian Combines act, though allowed with restrictions by the German law on monopolies and price agreements.

The fallacy underlying this argument against price-competition is the assumption that every dealer in every line of business should earn profits on his capital. In making this assumption the author forgets that the cost of production of a particular good varies with the efficiency of the plants producing it. It would appear just as legitimate for the more efficient producer to offer the same good at a lower price, as to offer a better good at the same price.

The second part of the book is on "Cost of Doing Business" and the "Proper Way to Figure Profits." Here the only point worthy of notice is that business recognizes interest as a part of cost and not as profit on the investment. A number of statements of the selling expenses of large firms are presented to show the similarity between the expense accounts of various industrial plants. The business man should find this part of the book both interesting and valuable.

The Human Factor in Works Management. By JAMES HARTNESS. New York: McGraw-Hill Book Co., 1912. 8vo, p. ix+159. $1.50.

This volume is particularly refreshing in its call for efficiency of a much neglected kind. It proposes to secure a large increment in industrial efficiency by a wise and proper use of the mind and the body of every human being

engaged in organized industry. Special emphasis is given to such uses as contribute to the greatest comfort and success of the individual worker, the business organization, and the nation. Progress, it is pointed out, can most easily be achieved by a careful utilization of the human factors of habit, inertia, and repetition. Instead of presenting new schemes of management, the volume renders a more timely service by (1) promoting a better adjustment between the mechanical and the human sides of works management, and (2) laying down some principles of industrial economics by means of which the quality of new schemes of management may be at least roughly tested.

Although it suffers somewhat from a repetitive treatment, the book merits the consideration not only of works managers, but also of all persons who are engaged in the direction of organized human effort.

Experiments in Industrial Organization. By EDWARD CADBURY. London: Longmans, Green & Co., 1912. 8vo, pp. xxi+296. $1.60 net.

This interesting and suggestive book records various industrial experiments on a small scale but such as are being urged or tried out today on a larger scale in an attempt to adjust more satisfactorily the relations between the employer and the employee.

The experiments described are parts of a scheme of factory organization at the Bournville Cocoa and Chocolate Works. This scheme includes a carefully worked-out method of selection of employees, of education, of discipline, of remuneration, of provision for health, safety, recreation and social life, and of the creation of a savings and pension fund. The special significance of the plan is that it has developed over a period of fifty years with a constantly growing establishment that in 1911 employed over 6,000 people. So far as this one factory is concerned "business efficiency and the welfare of the employees" have been demonstrated to be two sides of the same problem. The policy of the firm has "paid" from both standpoints.

The author's presentation of this material adds to its value. His account of each feature is concise yet remarkably effective in giving just the information that is significant to one interested in any phase of factory organization.

The Union of South Africa. With Chapters on Rhodesia and the Native Territories of the High Commission. By W. BASIL WORSFOLD. Boston: Little, Brown & Co., 1912. 8vo, pp. ix+530. $3.00 net.

This book falls into five parts. The first part is mainly geographical and historical; the second and third parts deal with the political organization of United South Africa; the fourth and fifth, with social and economic conditions. The historical section is little more than a sketch, with no pretensions to original

research and a very obvious pro-British bias. Like the description of the political organization it is chiefly valuable because it includes events too recent to have found a place in the older histories of South Africa. The last sections present useful summaries of the economic and social conditions in their latest phase and are based largely on governmental reports. Mr. Worsfold has undertaken to study his subject from every point of view and has managed to convey more information about it than is to be found in any other single volume with which the reviewer is acquainted. The book is, unfortunately, rather carelessly printed. It contains a number of good photographs and a useful map.

An Introduction to English Industrial History. By HENRY ALLSOPP. London: G. Bell & Sons, Ltd., 1912. 8vo, pp. xii+160. 60 cents.

This book is intended to introduce young students to English industrial history and to stimulate their interest in that subject. It is clearly and interestingly written and, in the main, accurate, although the author is disposed, at times, to dogmatize upon doubtful points and to state facts more precisely than our knowledge of them will warrant. This, however, is a fault hardly to be avoided in such a brief survey. It is surprising to discover that nothing is said about the development of English commerce. This is certainly an aspect of industrial history which ought not to be ignored. If space had to be saved the reader could better have spared the chapter on the Peasant's Revolt, which is interesting, to be sure, but far less vital. The book contains two suggestive maps on the density of population in 1700 and in 1800, and a short, rather haphazard, list of books for further reading.

The Coal Miner. By EARL A. SALIERS. Bethlehem, Pa.: Bethlehem Printing Co., 1912. 8vo, pp. 65. $1.00.

This slender volume is devoted to a study of conditions in the coal mines of the Hocking Valley. The book consists of three brief parts, of which the first treats of the sporadic and unregulated labor disturbances previous to the year 1884. The second part sketches the history of "the organization period" of the Hocking Valley mines, down to the formation of the United Mine Workers' union. The third and most interesting chapter discusses the "Truck System of Payment" and its attempted eradication, which has received but lukewarm support from the miners themselves. Dr. Saliers has compressed a mass of interesting detail into a few readable pages.